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ABSTRACT

Establishing school-based drug prevention programs was the aim of the Drug-Free Schools and Communities Act of 1986 (DFSCA). A summary of the findings of a longitudinal study of DFSCA is presented in this report. Revitalized in 1995 as the Safe and Drug-Free Schools and Communities Act (SDFSCA), the Act's scope was extended to include prevention of violence. Programs in 19 school districts were studied over four years by repeatedly surveying a cohort of students, beginning when the students were in grades five and six. The study's primary purpose was to assess whether drug prevention programs make a difference for youth; and, if so, what strategies were most successful. Findings reported under "Student Behaviors, Beliefs, and Attitudes about Drugs," include comparison of the two groups' responses over time, profiles of users and non-users, and "What Students Say About Drugs." Under "Home School, and Community Risk Indicators" are topics on school environment and violence; under "Drug Prevention Programs and Their Effects on Student Outcomes" are findings on program consistency and effectiveness, student participation, and "Outcomes of Prevention Programs." A summary of study findings, conclusions, data analyses, a discussion of implications, a bibliography, and a "Glossary of Analysis Variables" are provided. (EMK)

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School-Based Drug Prevention Programs: A Longitudinal Study in Selected School Districts

Final Report

U.S. Department of Education
Planning and Evaluation Service

1997

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School-Based Drug Prevention Programs: A Longitudinal Study in Selected School Districts

Final Report

1997

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U.S. Department of Education
Planning and Evaluation Service

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Preface

Introduction

This report summarizes the findings of a longitudinal study of the Drug-Free Schools and Communities Act (DFSCA) State and Local Programs. Through this program, states and Governors' offices distribute funds to districts, schools, and eligible community organizations to implement drug prevention programs. Since July 1995, this Act has been known as the Safe and Drug-Free Schools and Communities Act (SDFSCA); it now provides funds for violence prevention activities as well as drug prevention. The Research Triangle Institute (RTI) conducted this study under contract to the U.S. Department of Education (ED).

The current study examined drug prevention programs in 19 school districts over a period of four years and surveyed a longitudinal cohort of students starting in grades five and six. The study's primary purpose was to assess if prevention programs make a difference for youth and, if so, what strategies were most successful.

National Trends in Drug Use

As extensive research over the past 20 years has indicated, the use of cigarettes, alcohol, and other drugs has been, and remains, a major public health problem for adolescents in this country. In 1986, the Monitoring the Future Survey[1] of high school seniors indicated that more than 90 percent of high school seniors had consumed alcoholic beverages and over 65 percent of them were current users (i.e., had consumed alcoholic beverages during the last 30 days). Further, two-thirds of all seniors had smoked cigarettes and 30 percent were current smokers.

Although drug use declined over the next five years, the trend reversed itself in 1991 among eighth-grade students, and in 1992 among tenth and twelfth graders, according to data provided through the annual Monitoring the Future surveys. Findings from the 1995 survey indicated that the proportion of eighth-graders taking any illicit drug in the 12 months prior to the survey had nearly doubled since 1992 (from 11 percent to 21 percent) and had increased from 27 percent to 39 percent among seniors. Of particular concern was the sharp rise in marijuana use during this time period. Among eighth-graders, annual prevalence increased from 6 percent in 1991 to 16 percent in 1995. Among 12th-graders this figure increased from 22 percent in 1992 to 35 percent in 1995. Use of other illicit drugs such as LSD, hallucinogens other than LSD, amphetamines, stimulants, and inhalants, was also on the rise during that time period. The years between 1992 and 1995, when drug use was increasing among youth, coincided with the time period during which this study took place.

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[1] Bachman, J.G., Johnston, L.D., and O'Malley, P.M. *Monitoring the Future: Questionnaire Responses from the Nation's High School Seniors.* Ann Arbor: University of Michigan, 1987.

The results of the 1996 National Household Survey on Drug Abuse (NHSDA)[2] offered some hope that trends for increasing drug use among young people may be changing. The survey found that illicit drug use among teens ages 12 to 17 declined for the first time since 1992. Marijuana use, in particular, dropped slightly from the 1995 levels, indicating a possible shift in the use of this substance. Use of alcohol and smokeless tobacco also showed a slight decline from 1995 to 1996. On the other hand, the survey also found that more teenagers are trying heroin for the first time and that use of other substances such as cocaine and hallucinogens has remained unchanged or is increasing.

The Drug-Free Schools and Communities Act

In response to the increased awareness of alcohol and other drug use among youth, Congress enacted the DFSCA in 1986 to establish, operate, and improve drug and alcohol abuse education and prevention programs in communities throughout the nation. The Executive Branch and the Congress designed the DFSCA to encourage and support broadly based cooperation among schools, communities, parents, and governmental agencies to bring the nation significantly closer to the goal of a drug-free generation and a drug-free society. Since then, Congress reaffirmed its belief in the critical role of the nation's schools in achieving this goal through several amendments to the law in 1988, 1989, and 1990.

As safety in our schools became a more and more pressing concern — as reflected in the national education goals for the year 2000, which include a goal for safe, drug-free, and disciplined schools — Congress reauthorized the DFSCA as the Safe and Drug-Free Schools and Communities Act of 1994, Title IV of the Elementary and Secondary Education Act. It is now referred to as SDFSCA.

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[2] *National Household Survey on Drug Abuse: Population Estimates 1996.* U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies, 1997.

The U.S. Department of Education administers the SDFSCA and annually distributes funding to the states based primarily on the number of school-aged youth. States receive SDFSCA State Grant funds through two avenues: (1) state educational agencies (SEAs) receive 80 percent of the total state allotment to support school-based programs, and (2) Governors' offices, or agencies designated by the Governors, receive 20 percent for the support of school- or community-based prevention programs for youth. SEAs are required to target 30 percent of their State Grant funds to high-need districts.

Longitudinal Study of Drug Prevention Programs

This longitudinal study was part of an overall assessment of the DFSCA that included two other studies completed earlier by RTI: (1) an effort to identify and describe effective community-based prevention programs funded through the Governors' DFSCA programs, and (2) a recurring biennial national survey of state-level administration of the DFSCA.

The current study was designed to assess student behaviors and attitudes about alcohol and other drugs, characteristics of school-based prevention programs in the participating school districts, and the effectiveness of those programs. To accomplish the goals of the longitudinal study, project staff, aided by onsite data collectors hired by RTI, conducted annual visits to 19 school programs, in spring 1992, 1993, 1994, and 1995.

The study gathered information about the prevention programs through interviews with district and school staff, observations of program operations, and review of program materials. In addition, the study involved a longitudinal survey of approximately 10,000 students. The survey collected students' self reports about drug use and other behaviors, as well as attitudes and perceptions towards drug use. We began the survey when students were in the fifth and sixth grades, then surveyed them annually for three more years, until they reached the eighth and ninth grades.

In this volume we briefly describe the study and present our findings and conclusions. A companion Technical Report provides further details about the study methods and procedures, and an Executive Summary provides highlights of the study findings.

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Chapter 1. Introduction and Summary

The Drug-Free Schools and Communities Act

Congress originally enacted the Drug-Free Schools and Communities Act as subtitle B of Title IV of the Anti-Drug Abuse Act of 1986 (P.L. 99-570) with the intent of encouraging broadly based cooperation among schools, parents, community organizations, and governmental agencies toward the goal of a drug-free society. Since then, Congress has reaffirmed its belief in the critical role of the nation's schools in achieving this goal through several amendments to the law, in 1988, 1989, 1990, and 1994.

The 1988 amendments reenacted the DFSCA as Title V of the Elementary and Secondary Education Act (ESEA) of 1965. More recently, it was reauthorized as ESEA Title IV, the Safe and Drug-Free Schools and Communities Act of 1994 (SDFSCA), with passage of the Improving America's Schools Act. This recent authorization, which became effective in July 1995, added violence prevention as a key element of programs supported under the legislation. (The acronyms DFSCA and SDFSCA appear throughout this report. We use DFSCA primarily when referring to specific studies that began prior to 1994, including this study, and reports generated by those studies; we use SDFSCA when referring to the program in general, regardless of the time frame.) The U.S. Department of Education (ED) is responsible for administering the SDFSCA, which is the single largest drug and violence prevention activity sponsored by the federal government.

Under the DFSCA, which was in effect for the duration of this study's data collection, approximately 70 percent of the funding appropriated to each state under Part B of the statute was allocated to the state educational agency (SEA) with the remaining 30 percent administered by the Governor or an agency designated by the Governor. Each SEA was required to allot at least 90 percent of the funds it received to school districts (local educational agencies, or LEAs) to improve alcohol and other drug use (AOD) prevention. Nearly all school districts in the country now operate a prevention program, either separately or as part of a consortium of school districts. Total funding has varied across years, but districts have typically received between five and ten dollars per student/per year under this act. Thus, while a small district, of say, 1,000 students receives around $7,000 year, a very large district of, say, 100,000 students receives around $700,000. Districts use DFSCA funds to provide student assistance programs, student instruction and training, student support groups and counseling, peer leadership activities, parent education, teacher and other staff training, and other activities. The Governors' programs provide financial support to community-based organizations, schools, and other nonprofit entities for alcohol and other drug prevention activities. Governors' award recipients include health and mental health centers, family service agencies, and police departments, as well as public and private schools and other organizations. The local Governors' programs also provide prevention and education services and typically include activities to increase community awareness of substance abuse issues and support groups for youth in the community.

Background

In 1991, Research Triangle Institute (RTI) completed an Implementation Study of DFSCA State and Local Programs to describe the early planning and implementation of DFSCA programs in the 50 states, the District of Columbia, and Puerto Rico. The study focused on the time period from passage of the Act (1986) through the 1988-89 school year. The study was designed to support policy and program planning at the federal, state, and local levels by providing a comprehensive and nationally representative description of state, school district, and community practices in planning, administering, implementing, and evaluating DFSCA programs. This research was conducted under contract to ED.

Findings from the implementation study demonstrated that, as early as the 1988-89 school year, all 50 states (and the District of Columbia and Puerto Rico) were actively participating in DFSCA at the state and local levels. In addition, over 85 percent of the states reported having established significant coordination between the SEA and the Governor's Program for DFSCA within the state.

By 1988, DFSCA funding was reaching the vast majority of school districts. An estimated 78 percent of LEAs reported that they received DFSCA funding, either directly or through a consortium of districts. Further, there were early indications that DFSCA funds were having a positive effect on LEA prevention programs. More than half of the districts receiving DFSCA funding reported that they had been able to expand or increase numerous aspects of their programs since the advent of DFSCA funding, including: the number of grade levels with substance abuse curricula, the emphasis on substance abuse prevention, the number of teachers and staff involved, and the number of students reached. Twenty-five percent of the districts had increased their curriculum development activities, and 48 percent increased their degree of involvement with community agencies. Districts also reported the percentage of their DFSCA funding in 1988-89 that they had spent on specific types of activities. As might be expected in the early stages of program development and expansion, the largest categories of expenditures were for staff training, materials, and student instruction.

RTI has continued the work of the implementation study through conducting biennial surveys of the nation's SEAs and Governors' Offices, under contract with ED. These biennial surveys solicit information about the scope of alcohol and other drug-use problems in the states, the number of individuals served, the type of services and activities provided, program administration and coordination, program evaluation, and other descriptive data. These surveys provide ED with a comprehensive report of program performance.

Findings from the third biennial surveys, covering the performance period of 1991-93, indicated that nearly all school districts in the nation (97 percent) received funds through DFSCA during that period. Other findings illustrated the growth and extent of implementation of the program since the initial descriptive study:

- Approximately 40 million students received direct services from state and local DFSCA programs in 1992-93, including 92 percent of public school students and 60 percent of private school students.
- Student instruction, student assistance programs, teacher and staff training, and curriculum development/acquisition continued to form the foundation of local AOD prevention programs.
- With the rising concern over school violence, a substantial majority of the state and local educational agencies had, of their own initiative and through funding sources other than DFSCA, begun planning, needs assessment and public awareness activities related to violence prevention.
- The settings in which Governors' award recipients provided services were almost equally divided between elementary and secondary schools (47 percent), and nonschool settings (46 percent).
- School-aged youth accounted for 54 percent of local Governors' programs direct service recipients in 1992-93, and direct services to in-school youth were provided by 67 percent of all grant award recipients.

In sum, the Drug-Free Schools and Communities Act has provided an impetus for drug use prevention initiatives in virtually every state and community in the nation. In its first six years of existence the DFSCA has enabled states and localities to mount efforts in pursuit of a drug-free society. Training, curriculum development, interagency collaboration, parent involvement, and a host of other processes or activities upon which successful program implementation depends have increased in a substantial majority of states and communities.

The picture that emerges from the accumulated data provided through the implementation study and the biennial surveys is of a program that has been implemented throughout the country. However, only scant information is available regarding the program's impact. This lack of formal evaluation is due to several factors: 1) at an average of $6 to $10 in DFSCA funds per student, district programs are unable to add evaluation activities to their strained budgets; (2) state and local programs often lack the expertise to conduct formal evaluations; and (3) prior to the 1994 amendments, there was not a national mandate to collect data in a systematic and uniform way to permit aggregation at the state and national levels. While there is a perception among program officials in most states that DFSCA activities have produced results (for example, in 1991-93, roughly half of the SEAs and 44 percent of Governors' program respondents reported a decrease in the incidence or prevalence of alcohol and other drug use since implementation of DFSCA in 1986), state-level program staff continued to rely primarily on informal observation and anecdotal evidence to assess the impact of their DFSCA programs.

Currently, SDFSCA requires state and local SDFSCA programs to state goals and objectives and to identify and gather data regarding performance indicators. Further, state educational agencies are required to target 30 percent of their SDFSCA State Grant funds to high-need districts. The ongoing efforts of ED to develop a set of performance indicators for SDFSCA programs would appear to be the ideal vehicle for establishing uniform expectations for SDFSCA program performance, and for assisting states to implement the means to document program achievement.

Overview of the Longitudinal Study of School-Based Prevention Programs

Background

In the fall of 1990, ED and RTI began a five-year study of school and community programs to prevent alcohol and other drug use among school-aged youth. The study was designed to follow the work of the Implementation Study and inform ED and other decision makers about the activities and effects of these programs. The overall study had three components that, together, aimed to contribute to a greater understanding of what works in prevention and for whom. The component studies were:

- an effort to identify and describe effective community-based programs funded through the Governors' DFSCA programs[1];
- the third and fourth congressionally mandated biennial surveys, covering the periods 1991-93[2] and 1993-95[3], respectively, of state-level administration of DFSCA; and
- a longitudinal study of school-based prevention programs.

This report addresses the third component study, that of the longitudinal study of school-based prevention programs.[4]

The purpose of the longitudinal study was to investigate the effectiveness of school-based prevention programs in school districts receiving funds through DFSCA. Because virtually all districts in the country receive at least some DFSCA funding and conduct some types of prevention activities, it was not possible to implement an evaluation design that used control groups to establish the effects of prevention instruction and other services on students' attitudes, beliefs, and behavior regarding alcohol and other drugs. Consequently, ED conceived a design that would compare outcomes of students in local school districts whose prevention activities were "comprehensive" with those of students in districts that were operating programs that could be defined as not comprehensive, or "minimal." We defined "comprehensive" school district prevention programs as those having:

- prevention instruction in all schools and all grades from kindergarten through twelfth grade, coordinated and articulated in some manner across the grades,
- at least three components or activities in addition to classroom instruction that were intended to help reduce risk factors for drug use,
- community involvement in the prevention program, and
- training for staff who provided prevention instruction and activities.

To implement this design, we undertook activities to classify district prevention programs as comprehensive or comparison (i.e., minimal) and matched districts in each category according to demographic and other factors thought to be associated with attitudes, beliefs, and behaviors regarding use of alcohol and other drugs. In the selected districts, we surveyed a sample of about 10,000 students annually for four years and gathered program implementation data from the schools they attended.

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[1] *Community-Based Prevention Services for High-Risk Youth: A Study of the Governors' DFSCA Program.*

[2] *Characteristics of DFSCA State and Local Programs, Summary of the 1991-93 State Biennial Performance Reports.*

[3] This survey is scheduled for completion in October 1997.

[4] Two other reports have been produced for this study: *First Interim Report, Outcomes of DFSCA State and Local Programs*; and *School-Based Drug Prevention Programs (A Longitudinal Study in Selected School Districts): Local Education Agency Cross-Site Analysis.*

What we learned in the course of this study was not exactly what we set out to learn. First, we discovered that, while we thought we had selected programs at the two ***ends*** of a fairly long continuum of comprehensiveness, we found (after gathering extensive data) that the ***programs would be better described as falling along the continuum*** of "comprehensiveness." In fact, the two initial groups of district programs (comprehensive and comparison) overlapped along the continuum — they were not two distinct groups at all. Although this meant that our original plans to contrast the outcomes of the two groups of programs were not very meaningful, it provided an excellent opportunity to look closely at a wide variety of school-based prevention programs and examine the relationships between many of their component parts and our primary concern: student drug use, attitudes, and beliefs.

Second, the ***prevention programs varied so much within districts*** that the classification of programs at the *district* level as comprehensive or comparison was not meaningful. Further, *none* of the programs approached the comprehensiveness or extensiveness of those found by other researchers, in controlled situations, to be effective in preventing alcohol and other drug use among youth. The lack of fully comprehensive programs might not be surprising, given the level of funding most of the school districts received through DFSCA and other sources during this time period: about $10 per student per year, including state and local funds.

Finally, we also learned a great deal about:

- students' behaviors with regard to alcohol and other drugs and their beliefs and attitudes about these substances;
- risk indicators and other correlates of students' drug-use behavior;
- the districts' and schools' drug prevention programs — and students' participation in those programs; and
- the relationship of some of the program components to student drug use outcomes.

In the next few pages we highlight what we consider to be the most important findings of the study. Thereafter we return briefly to a description of the study design and procedures.

Summary of Study Findings

Some drug prevention programs improved student outcomes, but effects were small

We examined the characteristics of prevention programs in the participating districts as well as students' reported participation in prevention instruction and activities. The study was not designed to determine what specific features of classroom instruction (i.e., which curricula, which teaching methods, or how many hours) or which student support services/activities were most effective, but we did find that:

- Student outcomes were somewhat better in districts where the prevention programs had ***greater stability*** over time and in districts with ***more extensive program components***, including student support services. Though significant, the differences in terms of student outcomes were small. We also note that the programs with greater stability tended to be those with the greatest extensiveness as well.
- Students who said they had participated in either or both of the following activities had better outcomes: prevention-related classroom instruction and special schoolwide events (such as Red Ribbon week and drug-free dances and parties).

Few schools employed program approaches that have been found effective in previous research

- The consensus of the current research literature in the area of drug prevention is that certain approaches, such as those that teach children how to resist and deal with the powerful social influences for using drugs and those that correct the misperceptions of peer drug use, have the greatest potential for making a difference for students. However, these approaches are rarely implemented. A likely reason is the higher cost of these program approaches, particularly in terms of teacher training and staff time.
- While all school districts conducted informal assessments of their programs periodically, fewer than half conducted and responded to the evidence of more formal evaluations in selecting or altering their programs.

Program delivery was variable and inconsistent, even within schools

- The amount of time spent on prevention programming and the content of the instruction or activities varied greatly from classroom to classroom and school to school, even within districts that were attempting to deliver consistent programs.

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Summary of Study Findings (continued)

The strongest theme that emerged throughout our examination of the drug prevention programs in the participating districts was ***variability.*** We found at least as much variation in the delivery of prevention program components within districts as among them — at the school level, at the classroom level, and at the student level. Rather than planned variation between districts we had identified initially as comprehensive and their comparison districts, what we found was primarily the result of inconsistent implementation. Teachers and counselors simply did not have enough time, support, training, or motivation to provide all the instruction or other services and activities that they had planned to provide. Clearly, this variability had an impact on our ability to describe program delivery, let alone to assess program effectiveness. The extent of variability in program delivery is an important finding in its own right.

☆ Programs employed multiple components

- Most of the schools in the study provided both classroom instruction and student support services as part of their drug prevention efforts.

While much of the literature on research and practice in drug prevention conceives of and describes school-based programs as consisting primarily or solely of classroom-based instruction, we found that all of the study's districts ***combined such instruction with nonclassroom-based activities and support services***. In fact, at least one district prevention program coordinator considered the nonclassroom-based activities to be far more important than classroom instruction. We refer here to activities such as student assistance programs, student support groups, individual counseling, group counseling, mentoring projects, conflict mediation, assemblies, and drug-free dances and school events, all of which are intended to prevent drug use.

☆ Student behaviors, beliefs, and attitudes about drugs mirrored national trends

Our data base of self-report surveys from a longitudinal sample of approximately 10,000 students gave us an opportunity to examine changes in student drug use over time and the relationship between student drug use and a number of important factors. Although the student responses derive from a non representative sample of 19 districts, the magnitude and change in drug use are remarkably consistent with national trends. Among the noteworthy findings are those presented below.

- ***Alcohol was the most widely used substance for students at any grade level, and it was also the first drug that most students tried.*** One-third of the students surveyed had tried alcohol (more than just a sip) prior to or while in grade 5. Eighteen percent of eighth graders and 24 percent of ninth graders reported being heavy users of alcohol. A larger proportion of current users of alcohol and/or other drugs reported that their parents allowed them to have occasional sips of alcohol (71 percent), compared to current non-users (55 percent) or students who had never tried alcohol or other drugs (24 percent).

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Summary of Study Findings (continued)

- ***Students believed that their peers approved of drugs more than they themselves did*** (and more than the peers reported) and also held inflated beliefs about the amount of drugs their peers used.
- The use of drugs was ***related to violent behavior in schools***. A much larger percentage of current users of alcohol and/or other drugs (32 percent of them) reported being involved in school fights as the aggressors than did current nonusers (14 percent of those students) or students who had never tried drugs (6 percent).
- Higher levels of reported gang activity and violence at school were significantly associated with greater drug use and more tolerant views toward drugs.
- Students who said they had ***positive school experiences*** (enjoyed school, tried to produce their best work, found classes interesting) were significantly less likely to use drugs than their peers who had negative experiences with school (hated school, found the work too difficult, frequently failed to complete assignments, misbehaved).
- Activities associated with lower drug use included ***sports and exercise, volunteer work, and spending more than two hours per day on homework***; spending more time on video games or watching television was associated with greater drug use.
- Students do most of their drinking of alcohol at friends' houses and at parties. While administrators in most of the schools we visited told us that there was little or no drug use on their school property, students' reports indicate some use there. Eleven percent of eighth and ninth graders reported drinking at school events (after school hours) during the past year and 11 percent reported drinking at school during the school day.

☆ **Larger social influences should be considered in any future research**

- Given the small impact of programs reported in this study, influences beyond the control of the schools need to be addressed in rethinking drug prevention efforts, as well as further research on improving the school-based prevention programs.

  Wide variations in student drug use in the different communities studied suggest that research should explore alternative models that can influence social norms affecting student behavior. While the school has an important role, interventions that go beyond school-based programs may be needed in many communities. This may require the integration of school-based approaches in broader community partnerships to curtail drugs. We currently lack research on how to do this effectively and what the outcomes might be.

Brief Overview of Study Procedures

As noted above, we classified district prevention programs as either comprehensive or comparison, starting with a data base of about 1,800 school districts. We matched districts in each category on demographic characteristics, and then selected pairs of districts for participation in the study on the theory that comparing students in districts with widely differing levels of prevention activity provided the best available opportunity to detect the effects of prevention activities on participating youth.

Over a four-year period, in school years 1991-92, 1992-93, 1993-94, and 1994-95, project staff surveyed about 10,000 students annually and gathered program implementation data in nine pairs[5] of school districts across the country. As noted above, each pair comprised districts with similar demographic characteristics (district enrollment, student racial/ethnic composition, poverty level, and population density) but with very different prevention programs. One of the districts in the pair operated a prevention program that provided activities to all students K-12[6] and had characteristics that, based on the prior research in the field, led us to expect that they would have the best chance of proving successful at reducing and/or delaying drug use among students in those districts. The second district in each pair had a more limited number of prevention program components (for example, only classroom instruction or only special events) and did not deliver those components to all students. For the purposes of this study we refer to these district prevention programs as "comprehensive programs" and "minimal" or "comparison programs," respectively. The program components we examined to identify comprehensive programs included student instruction, student counseling, user identification and referral, student assistant programs, peer/student support groups, peer counseling, community service, staff training, parent involvement, and community involvement.

In each participating school district, we made annual visits over a four-year period to obtain detailed information on the implementation of prevention program components. During the visits, project staff conducted interviews with district prevention program coordinators, school staff (e.g., principals, teachers, counselors), parents, advisory council members, students, and others involved with the prevention programs. Site visitors also reviewed program materials and observed prevention activities such as classroom instruction, student support groups, assemblies, and special events.

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[5] The final group of participating districts included 19 districts — one "pair" included one comprehensive district and two matching comparison districts.

[6] It should be noted that not all students in the *study* had received prevention education in each of their years in school. That is, in several districts, K-12 programs began in 1989 or 1990, after the study participants were in second or third grade.

Each spring, we conducted student surveys with approximately 10,000 students across the 19 districts. We guaranteed the students that their responses were confidential, that no one other than a small number of study staff at RTI's main offices would see the individual responses, and that we would report responses only in the aggregate. Survey administrators discussed our safeguard procedures with the students at each survey administration and carefully protected their privacy. For example, students removed a peel-off label containing their names from their survey forms before completing them, leaving only a bar-coded ID affixed to the form. We also made certain that no one other than project staff had access to the completed forms, which were sealed closed by the students. We selected students as fifth and sixth graders in 1991-92, then followed them longitudinally until they reached the eighth and ninth grades. Each year we gathered data on students' self-reported use of alcohol and other drugs, as well as related measures including attitudes and beliefs towards drugs, self-esteem, and peer pressure. (A detailed description of the study's methodology and response rates, as well as a copy of the study survey instruments, can be found in the Technical Report.) Students in the districts with comprehensive programs presumably received prevention programming during all four years of their participation in the study. Whether or not those students had been involved in the district's prevention activities prior to 1991 would depend upon (1) the length of time those districts' prevention programs had been in place and (2) the length of time the student had been enrolled in school in that district.

Student Sample

In the initial year of the study, our staff selected a sample of students from grades 5 and 6 from each of the participating districts. While in several small districts we selected all of the students in these grades, in the other districts we selected a sample of schools that would yield the targeted sample size (approximately 250 students in each grade). This was a purposive rather than random sample of schools. We first identified the clusters of elementary schools in a district, a cluster being defined as feeder schools for common middle or junior high school. We then selected the single cluster for which the student demographic characteristics (race/ethnicity and poverty) most closely resembled those of the students in the district as whole. Finally, we selected all fifth and sixth grade classrooms in those schools. Actual sample sizes for each of the 19 school districts ranged between 244 and 912 students. The 10,972 students who completed a survey the first year (1991-92) became the focus of our student tracking and survey data collection for the next three years.

Exhibit 1-1 displays the background characteristics of the students in the sample in spring 1992. The sample was very evenly split between males and females as well as between fifth graders and sixth graders. Most of the students were between the ages of 11 and 13, with a few students 14 and over. More than half (63 percent) of the sample identified themselves as White, 18 percent as African American, 15 percent as Hispanic, and a small number as American Indian or Asian.

Summary of Data Analysis Techniques

The annual data collection of program implementation and student survey data yielded several types of data. First, we compiled the implementation and program delivery data into a case study file for each district, organized to facilitate data reduction and summary. Major sections of this data file included (1) district and community demographic context such as, enrollment, racial composition, poverty level, and economic indicators; (2) program components, activities, and initiatives for the district and for key schools (schools with 25 or more study participants); (3) changes in district program goals and objectives; and (4) funding and evaluation. These data are used in this report to compare and contrast programs, summarize approaches to drug prevention, and illustrate key points regarding program delivery, quality of

Exhibit 1-1. Background Characteristics of Sample Students in Year 1

Grade	
Fifth	49%
Sixth	41%
Gender	
Male	50%
Female	50%
Age	
11	27%
12	47%
13	22%
≥14	4%
Ethnicity	
White	63%
African American	18%
Hispanic	15%
American Indian	3%
Asian	1%

Source: Student Survey 1992

services, and other relevant topics. A comprehensive description and assessment of program implementation for each of the 19 school programs is published separately.[7]

Second, we compiled a large student-level database comprising the annual surveys of students. The database included demographic data (e.g., current grade, current school, gender, race/ethnicity, date of birth) as well as annual responses to questions on drug use, attitudes, beliefs, and feelings towards drugs. In addition, during the last two years of the study, the survey asked students about their participation in particular prevention program components and activities offered in their district or school. The structure of the databases permitted linking student data to school and district data as well as linking individual students' data from one year to the next to observe trends in behaviors and attitudes.

Following the initial year of data collection, we obtained annual responses from 87 percent, 81 percent, and 72 percent of the originally surveyed students, respectively, for Years 2, 3, and 4. The primary determinant of our ability to obtain a completed survey from each student every year was continued enrollment in a district school.[8] So long as the students were attending school in the district that year, we attempted to administer a survey to them; however, if they moved to another district, we could not survey them that year. If, however, they returned to the district during a subsequent year, they were eligible once again for participation in the survey. Transfers out of the district accounted for the largest proportion of nonresponses each year, including 7.1 percent in Year 2, 13.9 percent in Year 3, and 19.2 percent in Year 4.

Data presented in this report are based on the sample of students that we tracked and obtained completed surveys from, during ***all*** four years of the survey. This sample represents approximately 66 percent of the original "baseline" sample and is composed of 7,221 students. (The companion Technical Report presents evidence for the comparability of this "retained" sample against the "baseline" sample, on important demographic and initial drug use variables.) In a few instances, we use data from either the first year or the last year of the study, to illustrate a point or because data were collected only during particular years; in each case, these are identified with the survey year. We refer to the four years of data collection as Year 1, Year 2, Year 3, and Year 4.

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[7] *School-Based Drug Prevention Programs (A Longitudinal Study in Selected School Districts): Local Education Agency Cross-Site Analysis.*

[8] **Participating students were surveyed at 78 schools in Year 1, 219 schools in Year 2, 196 schools in Year 3, and 253 schools in Year 4, across the 19 districts.**

We defined and employed a number of composite variables including: (1) measures of severity and frequency of drug use (e.g., current heavy use); (2) scale scores for groups of attitudinal or behavioral measures (e.g., scale score for self-esteem); (3) demographic and economic indexes (e.g., parental education); (4) aspects of program "comprehensiveness"; and (5) measures of the level of student participation in various types of program activities. These composite variables are defined in the report when they are first used.

The student sample was drawn as described above from a group of purposively-selected school districts and not as a nationally representative sample designed to yield population estimates. Data were therefore treated in a straightforward manner, without weighting or adjusting for nonresponse bias. Our methods for analysis of the student survey data included descriptive statistics, such as measures of central tendency and dispersion, and computation of counts and proportions. Tables and figures display data by district, program type (comprehensive or comparison), student cohort (fifth or sixth grade), or year of the study. In addition to descriptive statistics we employed relational or correlational statistics to examine the relationships between particular student characteristics and student outcomes as well as between program exposure to various components and student outcomes.

To examine the more complex interrelationships among program characteristics, program exposure to these components, and student outcomes, we used analysis of variance and regression analysis techniques. Recognizing that the study design did not include a true "baseline" for programs due to the ongoing nature of prevention programs and that, even after matching pairs of districts on important demographic variables there would still be a great deal of baseline non-equivalence between comprehensive and comparison districts, we further employed covariates in each regression model to attempt to equalize the two groups. Where appropriate, we adjusted for the effects of differences in district demographics, school environment for reported levels of violence, initial (Year 1) drug use experience for individual students, and student characteristics.

Interpretation of findings was complemented by qualitative analyses of data obtained from students, staff, and parents, through the annual site visits. We also included examples of personal comments provided by students each year that serve to illustrate the findings.

All study participants were given assurances that their responses would remain anonymous and confidential and no data have been released or presented that could identify a particular district, school, or respondent. For this reason, all data presented in this report appear in aggregate form; where data are presented by district they appear without identification except for a numerical code. At the conclusion of each round of data collection, participating schools received a compilation of student responses to the survey aggregated at the ***district*** level (for their own district) and another compilation aggregated across all 19 districts.

Organization of This Report

Findings from the longitudinal study of DFSCA are presented in two volumes and the executive summary. This first volume is organized into five major chapters, including this introduction. Chapter 2 provides our findings for drug use, behaviors, and attitudes among students in this sample, including changes experienced over the four years of the study. Chapter 3 describes some of the environmental risk indicators at home, school, and the community — including violence in the schools — and relates these to student outcomes. Chapter 4 relates program delivery, student participation in the program, and student outcomes. Conclusions and implications of study findings for policy makers and prevention program administrators are offered in Chapter 5.

The second volume, *School-Based Drug Prevention Programs: A Longitudinal Study in Selected School Districts, Technical Report*, contains the technical details of the study methodology and a copy of the student survey instrument.

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Chapter 2. Student Behaviors, Beliefs, and Attitudes About Drugs

During each of the four years of the study (spring of 1992-1995), we asked our two cohorts of students, beginning in grade 5 and grade 6, a similar core group of questions regarding their use of alcohol, cigarettes, marijuana, inhalants and smokeless tobacco. In addition, we asked questions regarding their attitudes towards drug use, their perceptions of their peers' use and attitudes, and their ability to refuse drugs offered to them. In this chapter we summarize their responses over the course of the four years.

Study Findings:
Student Behaviors, Beliefs, and Attitudes About Drugs

★ Alcohol was the most widely used substance for students at any grade level, and it was also the first drug that most students tried. One-third of the students surveyed had tried alcohol (more than just a sip) prior to or while in grade 5. Eighteen percent of eighth graders and 24 percent of ninth graders reported being heavy users of alcohol.

★ Use of all drugs increased as students got older, especially alcohol, cigarettes, and marijuana. The number of students who had consumed alcohol rose from 37 percent to 67 percent in four years, while cigarette use more than doubled, from 18 percent to 46 percent. Marijuana use rose sharply from three percent to 26 percent.

★ At the same time, students' views of drugs became considerably less negative over the four years, particularly for alcohol and cigarettes. While 82 percent felt that alcohol was bad to use, and 90 percent regarded cigarettes this way in year 1, by year 4 only 51 percent and 70 percent felt the same about the two drugs, respectively.

★ Students believed that their peers' views of drugs were more tolerant than their own and also held inflated beliefs about the amount of drugs their peers used. As eighth and ninth graders, only 17 percent of students believed their peers viewed alcohol as bad to use and 19 percent believed the same regarding cigarette use.

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Study Findings:
Student Behaviors, Beliefs, and Attitudes About Drugs

- ★ Levels of drug use, attitudes, perceptions, and beliefs about consequences of drug use are very sensitive to small variations in age; the younger students showed consistently less drug use and less tolerant views on drug use compared to the older students.
- ★ When comparisons for cohorts were made at the same grade level, the results were remarkably similar, indicating a strong association between age and the observed behaviors. Drug use appeared to be more strongly related to age than to other variables.
- ★ Current users of drugs showed lower academic aspirations, more involvement in school fights, and were more likely to say they learned about drugs from friends and peers, compared to non-users of drugs or students who had never tried drugs. A larger proportion of current users also reported that their parents allowed them occasional sips of alcohol, compared to the other two groups.
- ★ Students do most of their drinking of alcohol at friends' houses and at parties. Still, 13 percent of the students said they drank alcohol at after-hours school events and 11 percent reported alcohol use at school during the day time.

Changes in Student Measures Over Time

Cohort Similarities and Differences

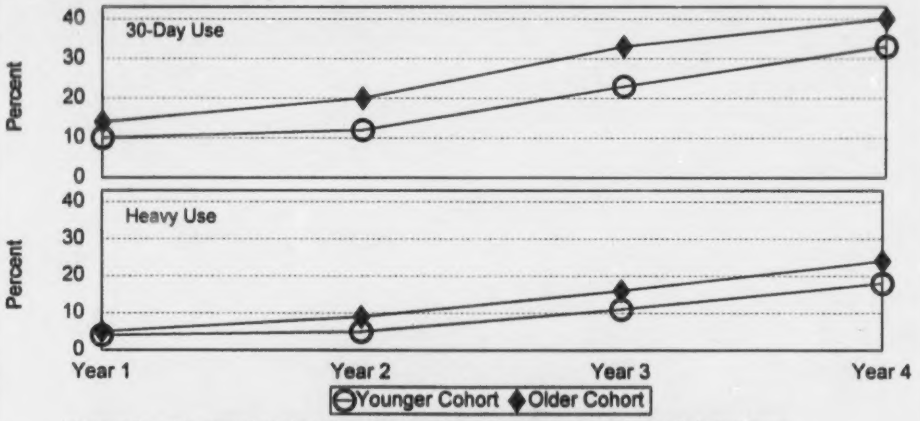
We collected data in the first year of the study on an approximately equal number of fifth and sixth graders in each district; we followed the same group of students for three more years, by the end of which time students were attending the eighth and ninth grades. To distinguish between the two age groups, we will refer to them as the "younger" cohort and the "older" cohort. As early as the first year of data collection, we examined the responses given by the two cohorts and found significant differences in their drug use, attitudes, perceptions and other responses. A single-grade difference in the cohorts manifested itself in a wide difference in their views and drug use behaviors. However, the two cohorts had similar results when compared at the same grade level, indicating that these behaviors were strongly related to age. We present results in this section by cohort, to permit closer examination of the differences in their responses and determine if these differences remained or diminished over the course of the four years of the study.

Drug Use

At each of the four time points of the study (spring of 1992-1995), students responded to the same set of questions regarding their use of alcohol, cigarettes, marijuana, inhalants, and smokeless tobacco. In addition, in the final two years of the study, the survey contained questions about the use of cocaine and steroids. To measure students' lifetime[1] use of each drug, each year we asked if they had ever used the drug; the survey also asked about recent (30-day) use at each time point and the age (or school year) when they first used the drug.

Alcohol. Consistent with other studies, this study found that alcohol was the most commonly used drug among students. As one student admitted in an unsolicited comment he made on his survey, "I know alcohol is bad, but it tastes good. I like it." ***Exhibit 2-1*** shows results for 30-day use (any use in the 30 days prior to the survey) and "heavy use" (drinking more than ten times or drunk at least once in the past 30 days). Both of these measures showed steady increases over the four years, for each of the cohorts. As eighth and ninth graders, 37 percent of the students had tried alcohol in the 30 days prior to the survey and 21 percent reported heavy use. We note also that many students began drinking alcohol at a young age. As

Exhibit 2-1. 30-Day and Heavy Use[a] of Alcohol, by Cohort[b] and Year



Interpretation: "Among students in the younger cohort, 10 percent reported use of alcohol (more than a sip) in the 30 days prior to the survey in Year 1 (grade 5), and 4 percent reported heavy use."

[a] Heavy use is defined as use of alcohol more than ten times in the last 30 days or being drunk at least once in the past 30 days.

[b] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Alcohol was defined as beer, wine, wine coolers, or liquor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

shown in ***Exhibit 2-2***, 33 percent of the younger cohort students (fifth graders) and 41 percent of the older students (sixth graders) students had already tried alcohol in year 1. By the end of four years, this figure had nearly doubled for the younger group to 64 percent and risen to 70 percent for the older group.

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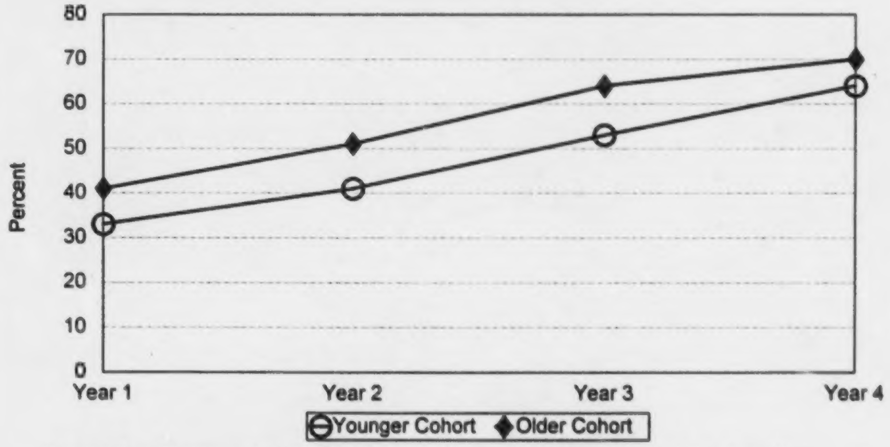
[1] Refers to a retrospective measure of drug use, that is, use of a drug *ever*, either currently or in the past.

Cigarettes. Cigarette smoking also held a powerful attraction for study participants, as one student's comment indicated, "I do smoke cigarettes and I know it's stupid. I am addicted to it and I can't quit." Whereas only five percent of fifth graders and eight percent of sixth graders were current cigarette smokers (i.e., had smoked cigarettes in the past 30 days) in year 1, 23 percent of the younger students and 26 percent of the older students were current users as eighth and ninth graders (***Exhibit 2-3***). Additionally, 11 percent of all students had smoked cigarettes at least ten times during the 30 days prior to the year 4 survey. Lifetime use of cigarettes tripled during the four years for the younger cohort (from 15 percent to 45 percent) and doubled for the older cohort (from 24 percent to 50 percent), as shown in ***Exhibit 2-4***.

Marijuana. Across the nation, the use and popularity of marijuana began an upward shift after 1992, as noted by several national studies. The results we observed for students in this study generally reflected this trend, as shown in ***Exhibit 2-5.*** Whereas relatively few students were smoking marijuana in year 1, 18 percent of students were current users as eighth and ninth

Exhibit 2-2. Lifetime Alcohol Use, by Cohort* and Year



Interpretation: "Among students in the older cohort, 41 percent reported in Year 1 (grade 6) that they had ever used alcohol (more than a sip)."

*The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Alcohol was defined as beer, wine, wine coolers, or liquor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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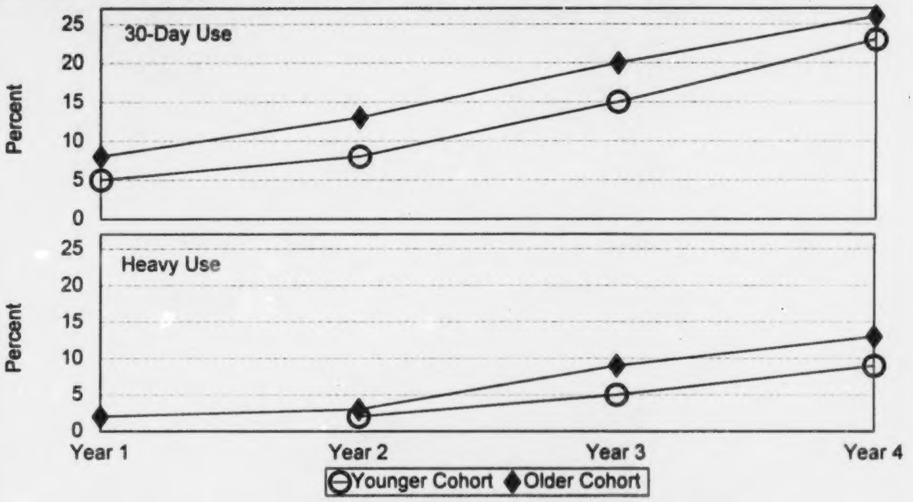
Exhibit 2-3. 30-Day and Heavy Use[a] of Cigarettes, by Cohort[b] and Year



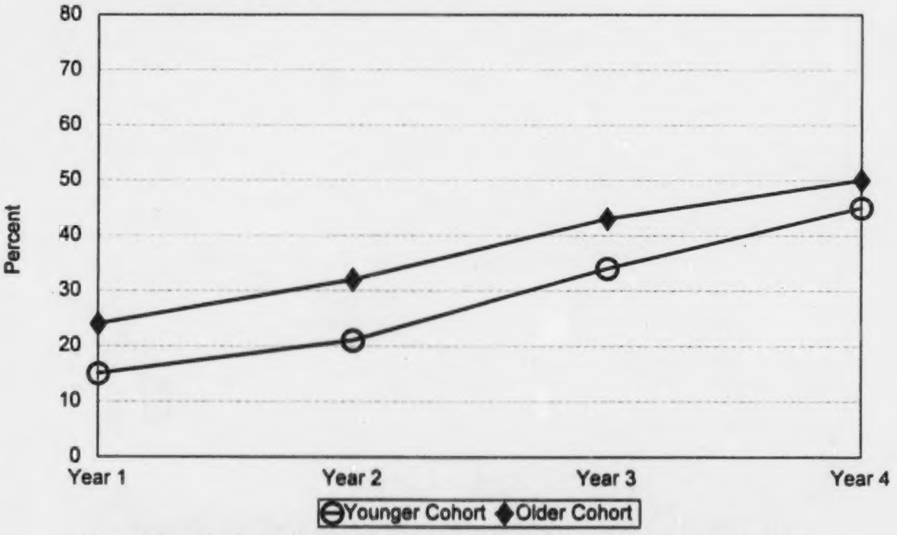
Interpretation: "Among students in the older cohort, 8 percent reported smoking cigarettes at least once in the 30 days prior to the survey in Year 1 (grade 6), and 2 percent reported heavy use."

[a] Heavy use is defined as use of cigarettes more than ten times in the last 30 days.

[b] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 2-4. Lifetime Cigarette Use, by Cohort[a] and Year



Interpretation: "Among students in the older cohort, 24 percent reported in Year 1 (grade 6) that they had ever smoked a cigarette."

[a] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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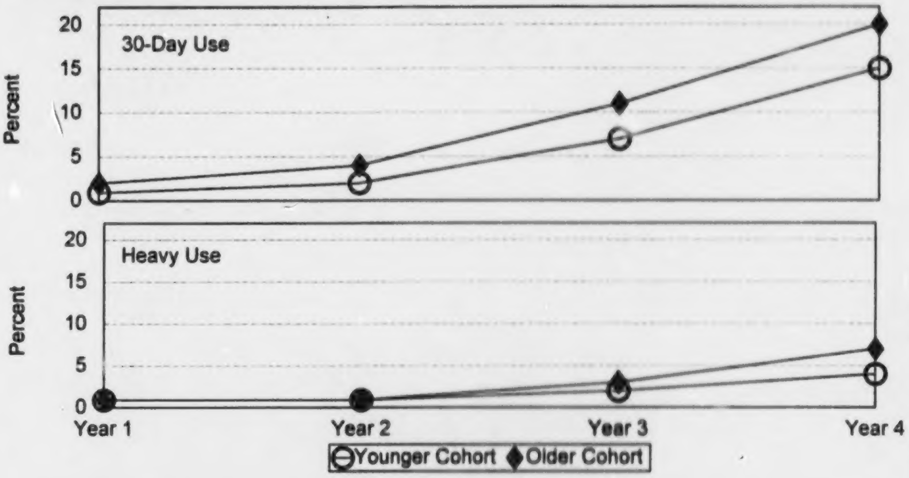
Exhibit 2-5. 30-Day and Heavy Use[a] of Marijuana, by Cohort[b] and Year



Interpretation: "Among students in the older cohort, 2 percent reported smoking marijuana at least once in the 30 days prior to the survey in Year 1 (grade 6), and 1 percent reported heavy use."

[a] Heavy use is defined as use of marijuana more than ten times in the last 30 days.

[b] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

graders in year 4 (i.e., had used marijuana in the previous month) and five percent had used marijuana at least ten times during that period ("heavy use"). Lifetime use of marijuana showed a similar trend, as ***Exhibit 2-6*** indicates. Although only 2-3 percent of the students had ever used marijuana in year 1, 22 percent of the younger students and 31 percent of the older students had used it at least once by the end of the fourth year of the study. One student's comment on his survey illustrated the attitudes towards marijuana: "I think that there's such a great difference in doing things like drinking, smoking, and smoking pot, and doing things like cocaine and heroin; you shouldn't lump them all together in the 'drug group'."

Inhalants. A second type of drug that came to the forefront at the national and local levels during the course of this study is inhalants. During site visits made by RTI in 1993 and 1994 (years 2 and 3) to participating districts, school staff reported greater awareness of the use of these drugs among middle and high school students, and both national and local newspaper articles warned of the unsuspected harmful nature of inhalants. Of particular concern was that these inhalants included commonly-found substances not usually regarded as "drugs" by parents or staff. These include solvents, gases, fingernail polish, and aerosols — all substances available for purchase at supermarkets and other stores. As the data show in ***Exhibit 2-7***, nine percent of all study participants had tried these as fifth and sixth graders, and 17 percent had done so by the

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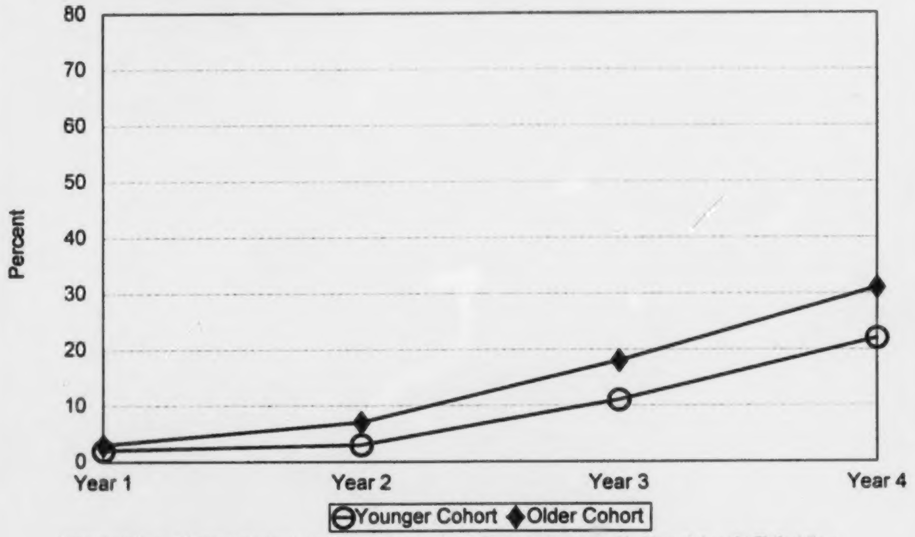
Exhibit 2-6. Lifetime Marijuana Use, by Cohort[a] and Year

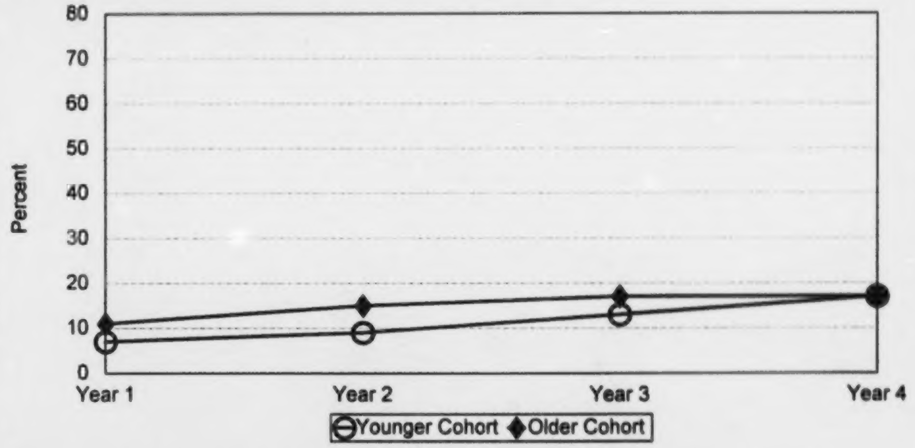


Interpretation: "Among students in the younger cohort, 2 percent reported in Year 1 (grade 5) that they had ever smoked marijuana."

[a] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 2-7. Lifetime Inhalant[a] Use, by Cohort[b] and Year



Interpretation: "Among students in the older cohort, 11 percent reported in Year 1 (grade 6) that they had ever used inhalants to get high."

[a] Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

[b] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Note: Students were asked to exclude from their responses any medications prescribed by their own doctor.

Source: Student Survey 1992-95 (items E1-E25); N= 7,221

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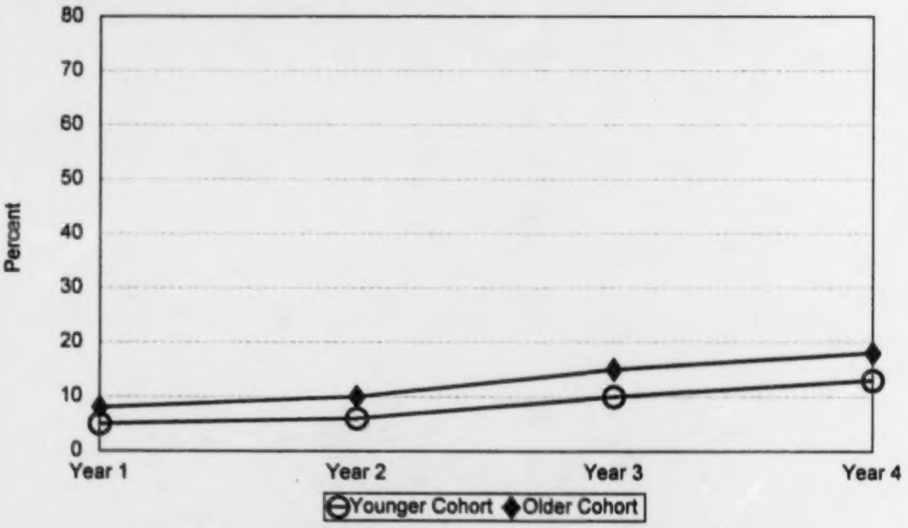
time they reached the eight and ninth grades (1995). Moreover, the eighth grade students exhibited the same level of use as the ninth grade students in the final year of the study (17 percent). The heightened use of inhalants was not uniformly experienced at all 19 districts but was more pronounced for some districts than for others. These differential results for districts are discussed in subsequent chapters.

Smokeless Tobacco. The survey also asked students about their use of (smokeless) chewing tobacco or snuff. Overall, about six percent of participating students had tried smokeless tobacco in year 1, compared to 16 percent in year 4 (see ***Exhibit 2-8***). As we will discuss in subsequent chapters, smokeless tobacco was not utilized by students to the same extent in all the regions represented by the participating districts but rather tended to be favored in certain parts of the country.

Cocaine and Steroids. When students were in seventh and eighth grades (year 3 of the study) the DFSCA survey began to ask about their cocaine and steroid use.[2] Although students

Exhibit 2-8. Lifetime Smokeless Tobacco Use, by Cohort[a] and Year



Interpretation: "Among students in the older cohort, 8 percent reported in Year 1 (grade 6) that they had ever used smokeless tobacco."

[a]The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

were using both drugs to a much smaller extent than other drugs, both were beginning to show signs of increased use among middle and high school students. Overall, cocaine use increased by three percentage points from three percent to six percent between 1994 and 1995, while steroid use increased by one percentage point from two percent to three percent (***Exhibit 2-9***). Again, the use of these two drugs varied by region of the country; while in some districts they were virtually unknown to students, in others the increasing use of these substances was of great concern to staff and parents. (Further discussion of district differences follows in another chapter.)

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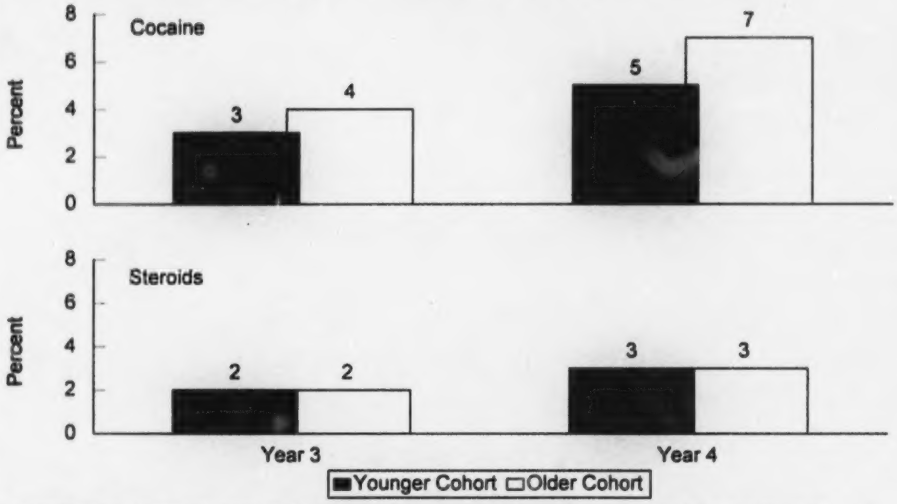
[2] These questions were not asked during the first two years of the study because of the low incidence of use at younger ages; however, the survey asked students about their attitudes towards use of these drugs beginning with year 1.

Exhibit 2-9. Lifetime Cocaine and Steroid Use, by Cohort* and Year



Interpretation: "Among students in the younger cohort, 3 percent reported in Year 3 (grade 7) that they had ever used cocaine and 2 percent reported that they had ever used steroids."

*The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Note: Students were asked to exclude from their responses any medications prescribed by their own doctor.

Source: Student Survey 1994-95 (items E20-E25); N=7,221

First Use of Alcohol and Other Drugs

Alcohol was not only the most widely used substance (more widely used, even, than cigarettes) for students at any grade level but it was also the first drug that most students tried, as shown in ***Exhibit 2-10***. One-third of the surveyed students first used alcohol prior to or while in grade 5; another 37 percent used alcohol for the first time in higher grades, including ninth grade. About 15 percent tried cigarettes, 7 percent tried inhalants, and 5 percent tried smokeless tobacco also at an early grade. Marijuana appears to be among the drugs with which students experimented at later grades, beginning in grade 7 and continuing into grades 8 and 9. On the

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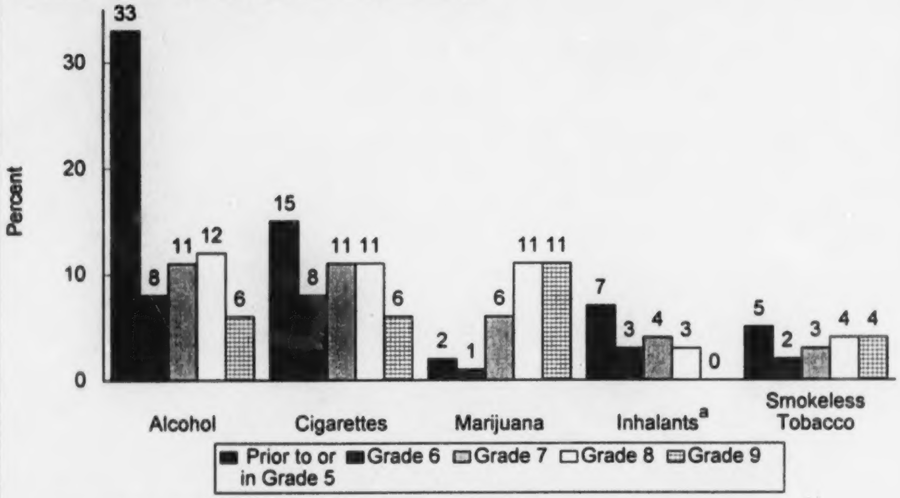
Exhibit 2-10. Grade for First Use of Drugs



Interpretation: "Thirty-three percent of all students reported that they first used alcohol (more than a sip) prior to, or while in grade 5."

[a] Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Alcohol was defined as beer, wine, wine coolers, or liquor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

other hand, students were more likely to try inhalants for the first time in the early grades rather than at later grades. For all substances except for inhalants, an upward trend was noted beginning with grade 7, in the number of new students trying drugs. For many students this grade corresponds to the transition from elementary school to middle school, and may also represent a vulnerable time for students due to the greater exposure to drugs, increased pressure to use drugs, and the perception of greater drug use among their peers, as we illustrate in a subsequent section.

Comparison with National Results

Few national studies provide the appropriate population statistics on incidence and prevalence of drug use against which the results of the present research effort can be compared, due to the differences in age groups studied. The most appropriate point of reference for this study is the Monitoring the Future Study[3], which surveys, among others, representative samples of eighth, tenth, and twelfth grade students on an annual basis. We note that the present study

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[3] Johnston, L.D., O'Malley, P.M., & Bachman. (1995 Press Release). *Monitoring the future survey (summary of findings through 1995).* The University of Michigan.

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did not include a national sample[4] and therefore was not designed to yield national statistics; however comparisons against national results provide a useful reference point. We show in ***Exhibit 2-11***, the results from both the present study and the Monitoring the Future Study, for the eighth grade classes of 1994 and 1995. The percentages for the DFSCA study for each year are based on half the sample (one cohort) or approximately 3,900 students. The DFSCA study's results for both lifetime and 30-day alcohol use appear higher than the comparable figures for the national study but this may be a function of the way a drink of alcohol was defined for respondents in each of the two studies. Results for both cigarettes and marijuana, the two most widely used substances by our sample following alcohol, are very comparable to those of the national study. Tobacco and inhalants were not as widely used among students in the present study, compared with the representative sample, although these figures differed by no more than five percentage points. Altogether, the results of this study for two of the time points (1994 and 1995) are comparable to those of the national study.

Exhibit 2-11. Comparability With *Monitoring the Future* Results, Grade 8

	Monitoring the Future Study (1994)	DFSCA Study (1994)	Monitoring the Future Study (1995)	DFSCA Study (1995)
Alcohol				
Lifetime	[a]56%	64%	[a]55%	64%
30-day	[a]26%	33%	[a]25%	33%
Cigarettes				
Lifetime	46%	43%	46%	45%
30-day	19%	20%	19%	23%
Marijuana				
Lifetime	17%	18%	20%	22%
30-day	8%	11%	9%	15%
Smokeless Tobacco				
Lifetime	20%	15%	20%	13%
30-day	8%	6%	7%	6%
Inhalants				
Lifetime	20%	17%	22%	17%
30-day	6%	8%	6%	8%

Interpretation: "Fifty-six percent of eighth grade students taking part in the Monitoring the Future Study 1994 reported that they had ever used alcohol; 64 percent of students participating in the DFSCA Student Survey 1994 reported the same."

[a] Changed wording in 1993 to define "drink" as more than a few sips.

Source: DFSCA Student Survey 1994-95, N=3,900; The Monitoring the Future Study 1995

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[4] Approximately 500 5th and 6th grade students were selected from each of the 19 participating school districts. In the smaller districts this represented all of the students in those grades while in larger districts students were selected from a sample of elementary schools.

Attitudes

Students' Attitudes Towards Drugs. To measure students' attitudes towards drugs, we asked them to say whether they agreed, disagreed, or were indifferent towards a number of pro-drug use statements as well as anti-drug statements. In general, students were more likely to emphatically agree with anti-drug statements and to emphatically disagree with pro-drug statements than the reverse. As ***Exhibit 2-12*** shows, the younger students were somewhat less likely to agree with pro-drug statements than the older students at each of the four time points of the study. Overall, fewer students agreed with the statements "I think people who like to get stoned or high are cool," and "If I were a parent, I wouldn't mind if my kids got high once in a while" than to other pro-drug statements; this may reflect the association of "getting high" with drugs other than the more commonly used alcohol and cigarettes. Overall, students were more

Exhibit 2-12. Percent of Students Who Agreed with *Pro*-Drug Statements, by Cohort[a] and Year

Pro-Drug Statement	Percent Agreeing							
	Younger Cohort				Older Cohort			
	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
It is OK for kids under 21 to buy alcohol if they can get away with it.	4	6	10	16	5	9	13	21
I would like the chance to get high on drugs.	1	2	5	11	1	3	8	13
I think people who like to get stoned or high are cool.	2	2	4	8	2	2	5	8
If I were a parent, I wouldn't mind if my kids got high once in a while.	2	3	5	9	3	4	7	10
It is OK for anyone to use drugs if they make him or her feel good.	3	4	6	11	3	4	8	12
It is OK to try drugs once or twice just to see what they are like.	4	5	12	21	6	9	16	24
It is OK for a person to drink alcohol if it makes him or her feel better.	6	6	9	14	6	8	12	16
There is nothing wrong with using most drugs.	4	6	8	11	5	6	9	11

Interpretation: "Among students in the younger cohort, 4 percent agreed in Year 1 (grade 5) that 'it is okay for kids under 21 to buy alcohol if they can get away with it'. In Year 4 (grade 8), 16 percent of these same students said they agreed with the statement."

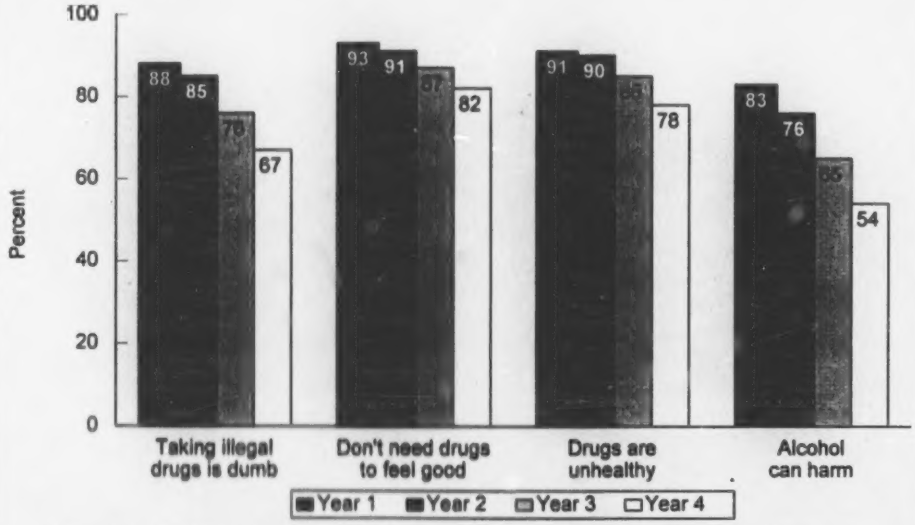
[a] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Note: Drugs were defined as substances that are illegal for students to take. Students were asked to exclude from their response any medications prescribed by their own doctor. Response categories were "agree," "neither agree nor disagree," and "disagree."

Source: Student Survey 1992-95 (items B1, B2, B4, B5, B6, B7, B9, B12); N=7221 likely to agree with pro-alcohol statements than to most others (e.g., "It is okay for kids under 21 to buy alcohol if they can get away with it" and "It is OK for a person to drink alcohol if it makes him or her feel better"), reflecting the greater acceptability for the use of alcohol compared to other drugs. In addition, students were consistently more likely, over time, to agree with the statement "It is okay to try drugs once or twice just to see what they are like" than to other statements, reflecting a sustained curiosity about drug use; while 6 percent of the older cohort students said they agreed with this statement in year 1, 24 percent agreed with it in year 4. These views toward drugs were reflected in comments volunteered on surveys, such as: "I don't think drugs are bad at all. My best friend drinks and he has not changed at all. So see, there is nothing wrong."

Students' reactions to negatively-worded statements about drug use also demonstrated their reluctance to disapprove of alcohol, relative to other drugs. As shown in ***Exhibit 2-13***, approval of the statement "I would not drink alcohol because it can harm my body" showed the largest decline: in year 1, 83 percent of students agreed with the statement while in year 4 only half (54 percent) the students still held this view. As the data in ***Exhibit 2-14*** show, the two cohorts held similar views in year 1 with regard to anti-drug statements, except for the specific statement on alcohol; the older students were less likely to disapprove of alcohol use than the

Exhibit 2-13. Percent of Students who Agreed with *Anti*-Drug Statements, by Year



Interpretation: "Eighty-eight percent of all students surveyed in Year 1 (grades 5 and 6) agreed that 'taking illegal drugs is dumb.'"

Note: Drugs were defined as substances that are illegal for students to take. Students were asked to exclude from their response any medications prescribed by their own doctor. Response categories were "agree," "neither agree nor disagree," and "disagree."

Source: Student Survey 1992-95 (items B3, B8, B10, B11); N=7,221

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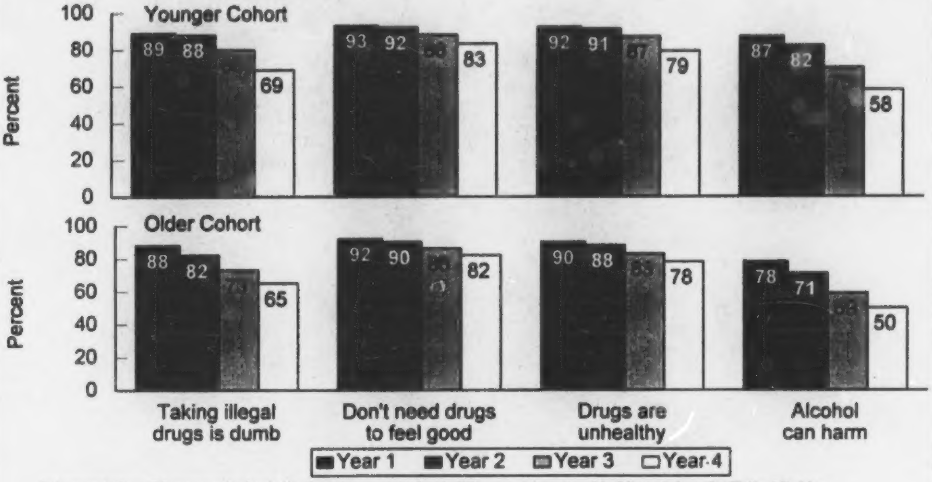
Exhibit 2-14. Percent of Students who Agreed with *Anti*-Drug Statements, by Cohort* and Year



Interpretation: "Among students in the younger cohort, 89 percent agreed in Year 1 (grade 5) that 'taking illegal drugs is dumb.'"

*The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Note: Drugs were defined as substances that are illegal for students to take. Students were asked to exclude from their response any medications prescribed by their own doctor. Response categories were "agree," "neither agree nor disagree," and "disagree."

Source: Student Survey 1992-95 (items B3, B8, B10, B11); N=7221

younger students, reflecting the differential use of alcohol already experienced at these grade levels. Over the four years the two cohorts' general disapproval of drug use (statements two and three) declined in similar fashion; however, the older cohort remained more approving than the younger cohort with regard to illegal drugs (statement one) and alcohol (statement four) in year 4.

To measure students' attitudes towards different drugs, we asked them to state whether the use of various drugs was a bad thing to do, a good thing to do, or neither. ***Exhibit 2-15*** shows the percentage of students in both cohorts who thought that use of the drug was a "bad thing." As fifth and sixth graders (year 1), over 80 percent felt that any of these drugs were bad to use; they objected most to cocaine (98 percent), marijuana (97 percent) and smokeless tobacco (95 percent). For both cohorts, these views diminished over time, particularly towards alcohol (including getting drunk with alcohol), cigarettes, and marijuana, showing a decrease of 20-30 percentage points between years 1 and 4. The rapid rate of decline in students' disapproval of alcohol, cigarettes, and marijuana paralleled the rapid rise in students' use of the same drugs during this time period. Although younger cohort students exhibited more negativity towards drugs in year 1 as shown in ***Exhibit 2-16***, by the end of the fourth year, both cohorts held similar

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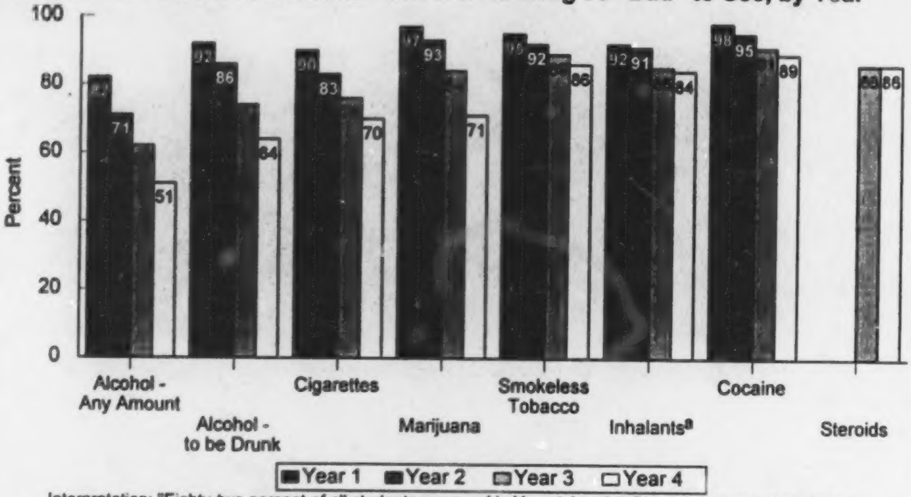
Exhibit 2-15. Percent of Students Who Viewed Drug as "Bad" to Use, by Year



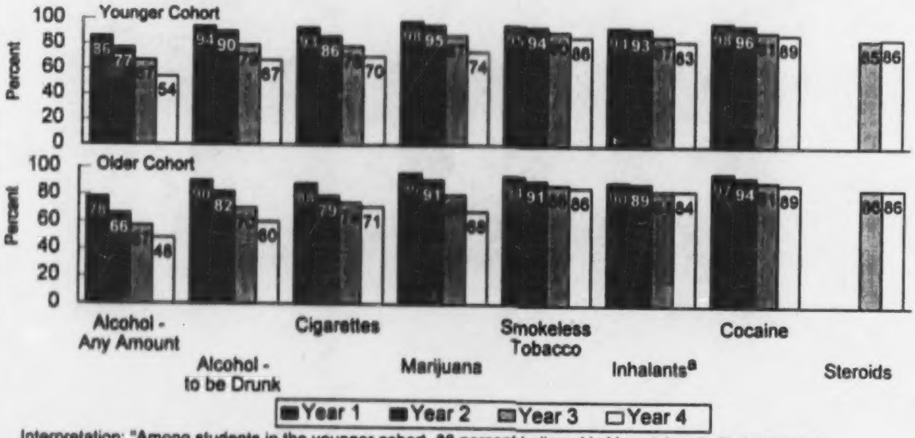
Interpretation: "Eighty-two percent of all students surveyed in Year 1 (grades 5 and 6) believed that alcohol (more than a sip) was 'bad' to use."

[a] Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Alcohol was defined as beer, wine, wine coolers, or liquor. Response categories were: "a bad thing," "neither good nor bad", and "a good thing."

Source: Student Survey 1992-95 (items C1-C7); N=7,221

Exhibit 2-16. Percent of Students Who Viewed Drug as "Bad" to Use, by Cohort[a] and Year



Interpretation: "Among students in the younger cohort, 86 percent believed in Year 1 (grade 5) that alcohol (more than a sip) was 'bad' to use."

[a] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

[b] Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Alcohol wasdefined as beer, wine, wine coolers, or liquor. Response categories were: "a bad thing," "neither good nor bad", and "a good thing."

Source: Student Survey 1992-95 (items C1-C7); N=7,221

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views towards cigarette use, tobacco, inhalants, cocaine, and steroids; however, the younger cohort remained more negative towards alcohol (including getting drunk) and marijuana use than the older cohort.

During the course of the DFSCA study, national studies noted alarming increases in cigarette smoking among teenagers, and anti-smoking legislation was increasingly debated in national circles. To measure students' attitudes towards cigarette smoking in particular, the DFSCA survey asked students in 1994 and 1995 (years 4 and 5 of the study) to react to several statements on smokers and smoking. As the data show in ***Exhibits 2-17A*** and ***2-17B***, fewer students disapproved of smoking in year 4 than in year 3, following the trend we observed for other measures of students' attitudes. Still, only 6 percent of ninth grade students (year 4)

Exhibit 2-17A. Percent of Students Who Agreed with *Anti*-Smoking Statements, by Cohort[a] and Year

	Percent Agreeing			
	Younger Cohort		Older Cohort	
***Anti*-Smoking Statements**	**Year 3**	**Year 4**	**Year 3**	**Year 4**
I would rather date people who don't smoke.	77	69	72	70
Smoking is a dirty habit.	72	66	69	67

Interpretation: "Among students in the younger cohort, 77 percent agreed in Year 3 (grade 7) with the statement, 'I would rather date people who don't smoke.'"

[a] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Note: Response categories were: "agree", "neither agree nor disagree", and "disagree."

Source: Student Survey 1994-95 (item C9); N=7,221

Exhibit 2-17B. Percent of Students Who Agreed with *Pro*-Smoking Statements, by Cohort[a] and Year

	Percent Agreeing			
	Younger Cohort		Older Cohort	
***Pro*-Smoking Statements**	**Year 3**	**Year 4**	**Year 3**	**Year 4**
Smokers know how to enjoy life more than non-smokers.	6	6	5	6
I personally don't mind being around people who are smoking.	20	25	24	28

Interpretation: "Among students in the younger cohort, 6 percent agreed in Year 3 (grade 7) with the statement, 'smokers know how to enjoy life more than non-smokers.'"

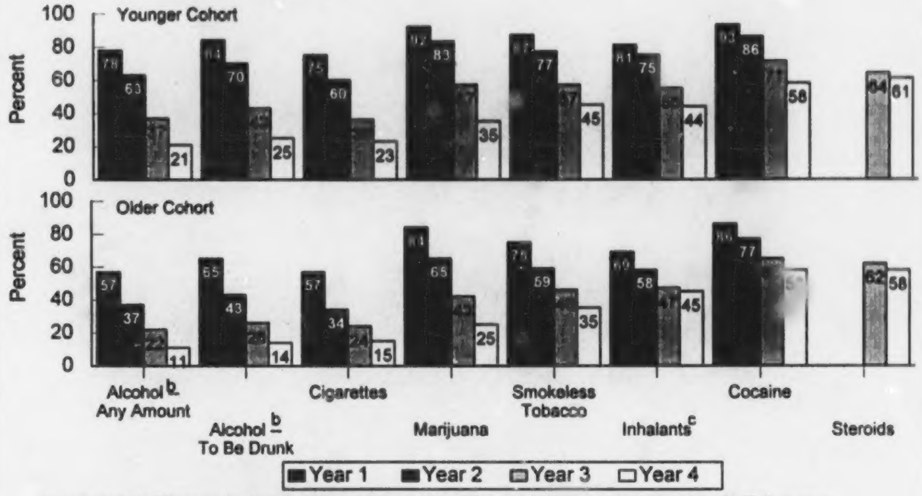
[a] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Note: Response categories were: "agree", "neither agree nor disagree", and "disagree."

Source: Student Survey 1994-95 (item C9); N=7,221 agreed that "smokers know how to enjoy life more than non-smokers", and 28 percent said they did not mind being around people who were smoking. Additionally, 70 percent of eighth and ninth grade students said they would rather date people who don't smoke and 67 percent agreed that "smoking is a dirty habit." As the data showed earlier, in year 4 of the study slightly over half the students (53 percent) said they had never tried cigarettes; therefore these attitudes towards cigarette smoking necessarily included those of smokers as well as non-smokers.

Perceptions of Peer Attitudes. In addition to asking students how they felt about using drugs, the survey asked students their beliefs about their peers' views; these results are presented in ***Exhibit 2-18*** for each of the two cohorts. As can be seen, in year 1 the two cohorts showed marked differences in how they believed their peers felt towards each drug. For example, while 78 percent of fifth graders thought their peers felt that alcohol (in any amount) was bad to use, only 57 percent of sixth graders thought the same. Similarly for cigarette use, 75 percent of the younger students but only 57 percent of the older students believed their peers regarded cigarette smoking in a negative way.

Exhibit 2-18. Percent Who Believed that Most Students View Drug as *Bad* to Use, by Cohort[a] and Year



Interpretation: "Among students in the younger cohort, 78 percent believed in Year 1 (grade 5) that most other students viewed alcohol as 'bad' to use."

[a] The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

[b] Alcohol was defined as beer, wine, wine coolers, or liquor.

[c] Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

Note: Response categories were: "a bad thing", "neither good nor bad", and "a good thing."

Source: Student Survey 1992-95 (items D1-D8); N=7,221

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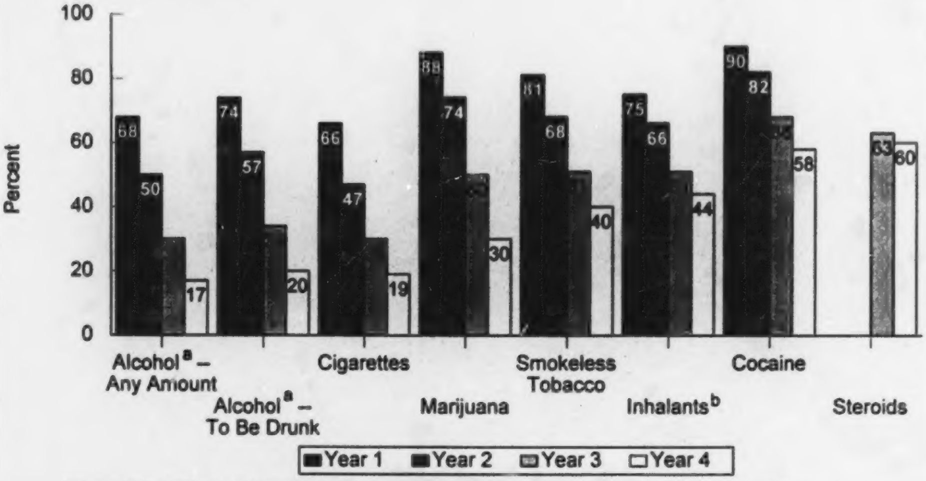
While many of the differences in perceptions of peer attitudes between the two cohorts were sustained to some degree over the course of the study, some of these diminished by the end of the study. Perceptions for peer attitudes towards alcohol, drunkenness, cigarettes, marijuana and tobacco remained different in year 4. For example, 21 percent of eighth graders and 11 percent of ninth graders thought peer views towards alcohol were negative and 23 percent of eighth graders and 15 percent of ninth graders held similar beliefs about peer views on cigarettes. The two cohorts' perceptions converged with respect to other drugs, however. While 81 percent of the younger cohort and 69 percent of the older cohort thought their peers perceived inhalants as a "bad thing" in year 1, 44 percent and 45 percent, respectively, felt the same in year 4. Parallel results were observed for students' perceptions of their peers' views on cocaine; while 93 percent and 86 percent of students in the younger and older cohorts, respectively, thought their peers felt that cocaine was a bad thing to use in year 1, 58 percent in both groups held that view in year 4. Overall as shown in ***Exhibit 2-19***, students' perceptions of peer negative attitudes dropped considerably over the four years, particularly regarding alcohol, cigarettes and marijuana.

Exhibit 2-19. Percent Who Believed that Most Students View Drug as *Bad* to Use, by Year



Interpretation: "Sixty-eight percent of all students surveyed in Year 1 (grades 5 and 6) believed that most other students viewed alcohol as 'bad' to use."

[a] Alcohol was defined as beer, wine, wine coolers, or liquor.

[b] Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

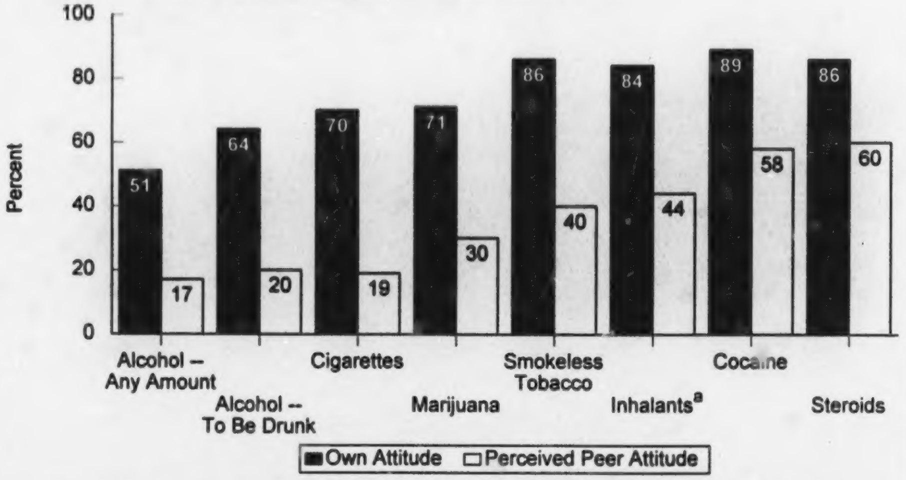
Note: Response categories were: "a bad thing", "neither good nor bad", and "a good thing."

Source: Student Survey 1992-95 (items D1-D8); N=7,221

Perceived Peer Attitudes vs. Own Attitudes. An interesting comparison is that of students' perceptions of their peers' attitudes with their own stated attitudes. ***Exhibit 2-19*** shows that each year, fewer and fewer students perceived that their peers regarded the various drugs as "bad," and this decline in perception was very sharp compared to the decline in the students' own attitudes as was previously shown in ***Exhibit 2-15***. During the final year of the study as illustrated in ***Exhibit 2-20***, more than half the students surveyed still viewed all drugs as bad to use; in contrast, most students thought their peers were much more accepting of drugs. For example, while 51 percent of students themselves thought alcohol was bad to use, only 17 percent believed that their peers thought it was bad; and while 70 percent said cigarettes were bad for them, only 19 percent thought their peers felt the same way.

Perceived Peer Use of Drugs. In the view of several prevention researchers and practitioners, students tend to overestimate the proportion of their peers who use drugs and further, this incorrect estimate contributes towards a willingness on the students' part to try drugs. Correcting these unrealistic normative views is the focus of some prevention programs. To investigate students' perceptions of peer drug use, the survey asked students to state their beliefs about their friends' use of drugs in the last 30 days. ***Exhibit 2-21*** shows the percentage

Exhibit 2-20. Perceived Peer Attitudes vs. Students' Own Attitudes in Year 4: Percent Who Viewed Drug as *Bad* to Use



Interpretation: "Fifty-one percent of students surveyed in Year 4 (grades 8 and 9) believed that alcohol (more than a sip) was 'bad' to use but only 17 percent of these thought their peers held the same belief."

[a] Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Response categories were: "a bad thing", "neither good nor bad", and " a good thing."

Source: Student Survey 1995 (items C1-C8 and D1-D8); N=7,221

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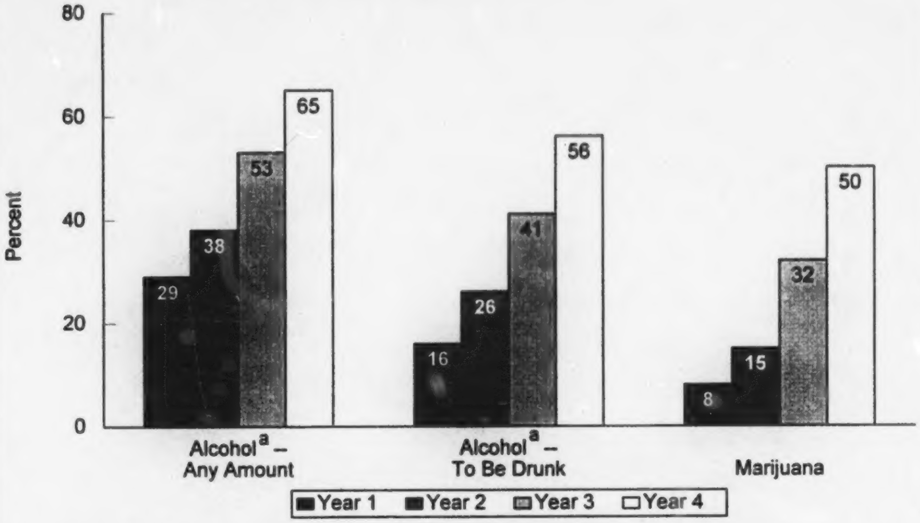
Exhibit 2-21. Percent of Students Who Believed Some or All of Their Friends Used Drug in the Last 30 days, by Year



Interpretation: "Twenty-nine percent of all students surveyed in Year 1 (grades 5 and 6) believed that some or all of their friends had used alcohol (more than a sip) during the 30 days prior to the survey."

[a] Alcohol was defined as beer, wine, wine coolers, or liquor.

Source: Student Survey 1992-95 (items D9, D10, D12); N=7,221

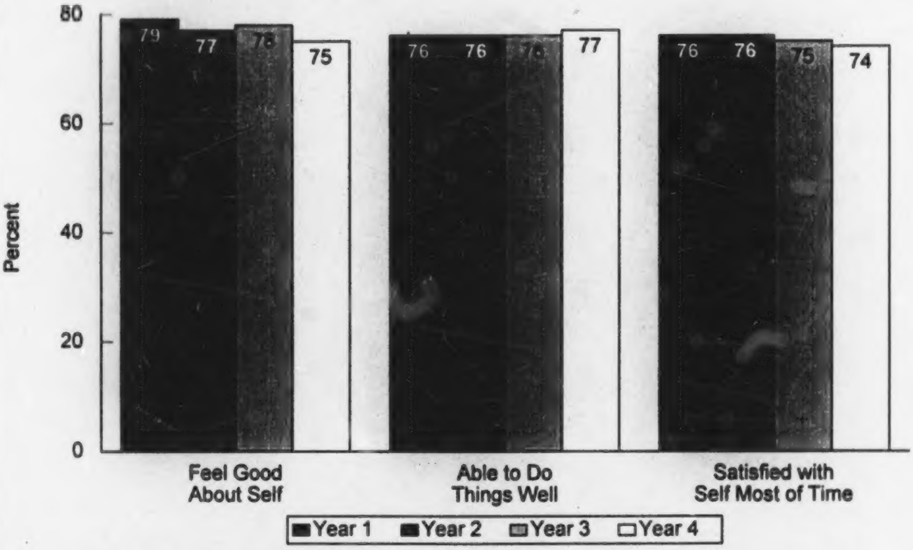
of students who believed at least some, if not all, of their friends used marijuana or alcohol or were drunk in the 30 days prior to the survey. Each year, substantially more students thought their friends were using drugs. In grades 5 and 6, 29 percent of all students thought their friends drank alcohol in the 30 days prior to the survey, compared with 65 percent who thought the same in grades 8 and 9. When asked how many of their friends got drunk in the past 30 days, 16 percent of students in grades 5 and 6 thought that some or all their friends did that, compared with 56 percent who held the same belief in grades 8 and 9. The strength of that perception among students was illustrated in a comment written on a survey: "I know lots of people who get drunk everyday in this school, more than half the school." With respect to marijuana use, eight percent of students surveyed in grades 5 and 6 thought some or all of their friends used marijuana during the last 30 days, compared with 50 percent who thought the same in grades 8 and 9.

Interestingly, these perceptions of peer drug use greatly overestimated the 30-day drug use that students reported during this same time period. Whereas 50 percent thought their friends used marijuana recently, only 18 percent of study participants reported using marijuana in that time period. The same was true for perceptions of alcohol use: 65 percent thought their friends used alcohol recently while 37 percent reported actual use for the same time period. While it is true that the study participants may not be the "friends" these students referred to, students' responses are indicative of the contrast between actual and perceived drug use.

Self-Esteem

Many school-based intervention programs, including some of the drug prevention programs we visited for this study, have as one of their goals to increase students' sense of self esteem. Armed with this positive image of themselves, students are said to have better resistance to engaging in harmful or destructive behaviors such as drug and alcohol use. ***Exhibits 2-22*** and ***2-23*** present the reactions of students to both positive and negative statements about themselves that provide one measure of their self-esteem. Overall, students' self-esteem, as measured by these scales, did not vary greatly over time. In year 4, approximately three fourths of the participating students said they agreed with positive statements of themselves and fewer than one-fourth agreed with negative statements of themselves.

Exhibit 2-22. Percent of Students Who Agreed with *Positive* Statements about Themselves, by Year

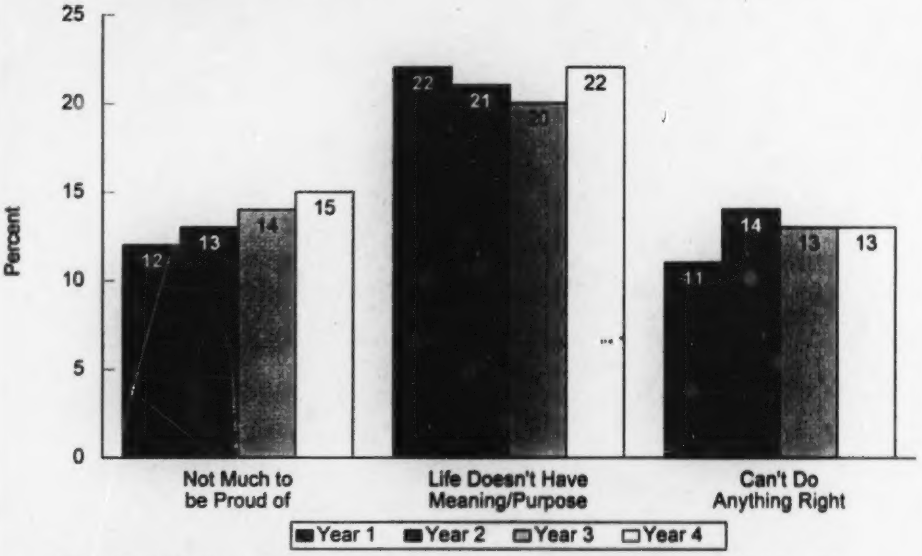


Interpretation: "Seventy-nine percent of all students surveyed in Year 1 (grades 5 and 6) agreed that they 'felt good about themselves.'"

Note: Response categories were: "agree", "neither agree nor disagree", and "disagree."

Source: Student Survey 1992-95 (items G1, G4, G5); N=7,221

Exhibit 2-23. Percent of Students Who Agreed with *Negative* Statements about Themselves, by Year



Interpretation: "Twelve percent of all students surveyed in Year 1 (grades 5 and 6) agreed that they did not have 'much to be proud of.'"

Note: Response categories were: "agree", "neither agree nor disagree", and "disagree."

Source: Student Survey 1992-95 (items G2, G3, G6), N=7,221

Refusal Skills

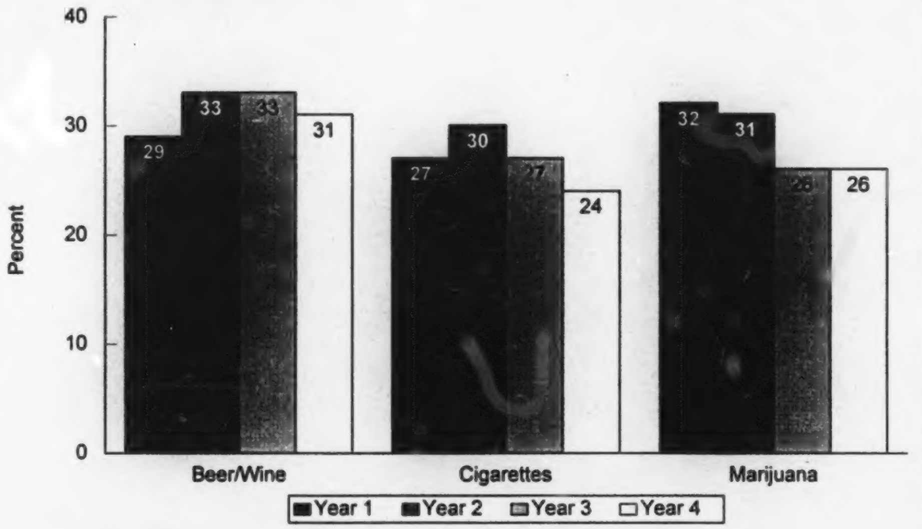
Another focus of many intervention programs is teaching children how to resist pressure to engage in drug use. The DFSCA survey asked students to rate how difficult it would be to refuse offers of beer or wine, cigarettes and marijuana. The two cohorts differed very little in their stated ability to refuse these drugs. As shown in ***Exhibit 2-24***, one-fourth to one-third said they would have a difficult time refusing these offers. Over the four years of the study, students' perceived ability to refuse drugs did not appear to change considerably.

Consequences of Drug Use

An additional goal of many intervention programs is to increase students' knowledge and awareness of the consequences of using drugs and alcohol. This goal is most often addressed through classroom instruction that emphasizes the effects of drug and alcohol use and through school-wide assemblies and awareness-raising campaigns.

The DFSCA survey asked students their views on the negative consequences of using alcohol, cigarettes and marijuana, the three most commonly used drugs among students in this study. We found that the one-year difference in grade between the two cohorts resulted in a

Exhibit 2-24. Percent Who Said "Hard" or "Very Hard" to Refuse if Drug Was Offered, by Year



Interpretation: "Twenty-nine percent of all students surveyed in Year 1 (grades 5 and 6) reported that it would be 'hard' or 'very hard' to refuse beer or wine if these were offered to them."

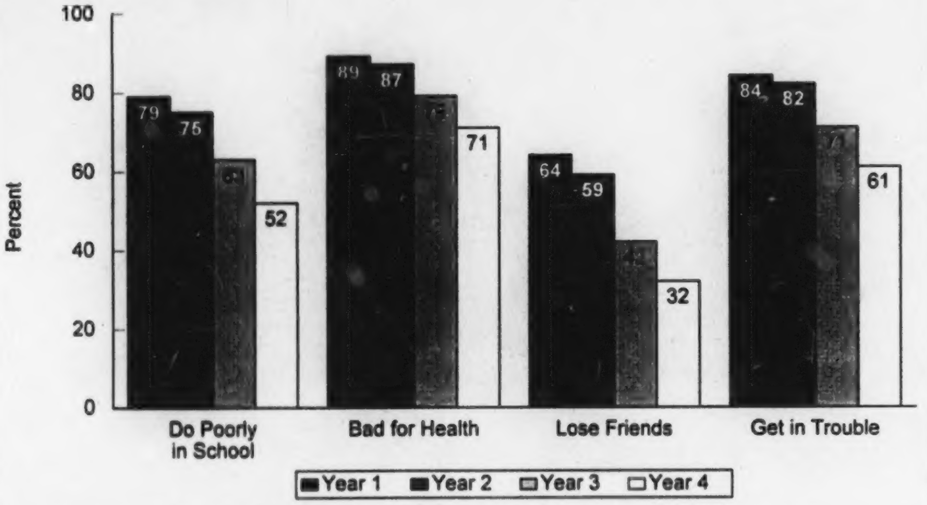
Note: Response categories were: "very hard", "hard", and "not hard at all."

Source: Student Survey 1992-95 (items H1-H3); N=7,221

wider margin of differences in students' views of the consequences of drug and alcohol use. In general, more of the younger students than the older students were inclined to agree that use of the various drugs carried negative consequences. Overall, students' beliefs for the negative consequences of drug use weakened considerably over the course of the four years (see ***Exhibits 2-25*** to ***2-27***).

Students in both cohorts reacted more emphatically to statements about the effects of drugs on a person's health than to statements regarding other consequences. In year 4, over 70 percent of students said they agreed that use of alcohol, cigarettes, or marijuana is bad for their health. Students were least convinced that using alcohol, cigarettes, or marijuana causes them to lose their friends; in year 4, only 30 to 40 percent of students agreed with this consequence. When asked to react to the notion that using a drug "gets a kid in trouble," 54 percent thought that cigarette use would have that consequence, 61 percent thought the same about alcohol use, and 69 percent thought the same about marijuana use. Finally, when asked about the effects of drug and alcohol use on school performance, 64 percent believed that use of marijuana would cause them to do poorly in school, 52 percent believed the same about alcohol use, while only 37 percent thought that smoking cigarettes would affect their performance in school.

Exhibit 2-25. Percent of Students Who Said They Agree with Consequences, for Alcohol*



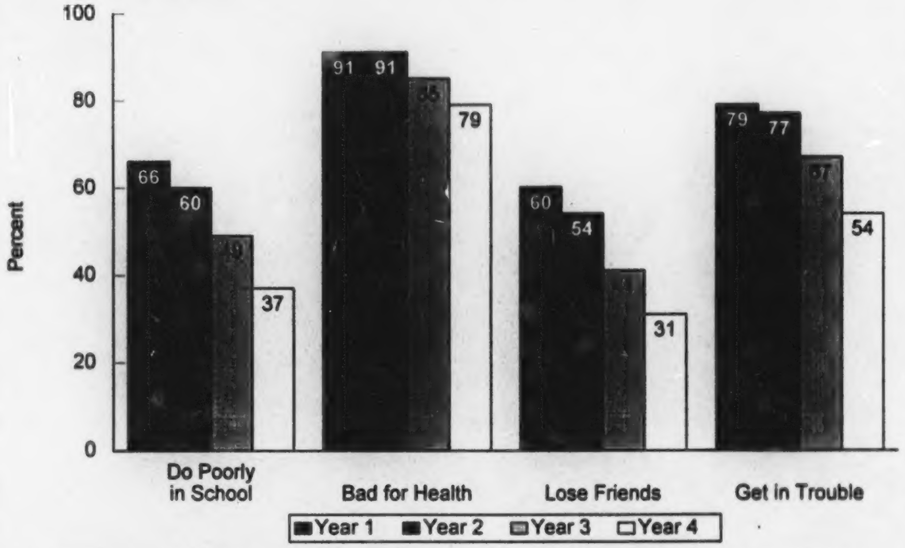
Interpretation: "Seventy-nine percent of all students surveyed in Year 1 (grades 5 and 6) agreed that 'using alcohol makes students do poorly in school.'"

*Alcohol was defined as beer, wine, wine coolers, or liquor.

Note: Response categories were: "agree", "neither agree nor disagree", and "disagree."

Source: Student Survey 1992-95 (items 11-14); N=7,221

Exhibit 2-26. Percent of Students Who Said They Agree with Consequence, for Cigarettes



Interpretation: "Sixty-six percent of all students surveyed in Year 1 (grades 5 and 6) agreed that 'smoking cigarettes make students do poorly in school.'"

Note: Response categories were: "agree", "neither agree nor disagree", and "disagree."

Source: Student Survey 1992-95 (items 15-18); N=7,221

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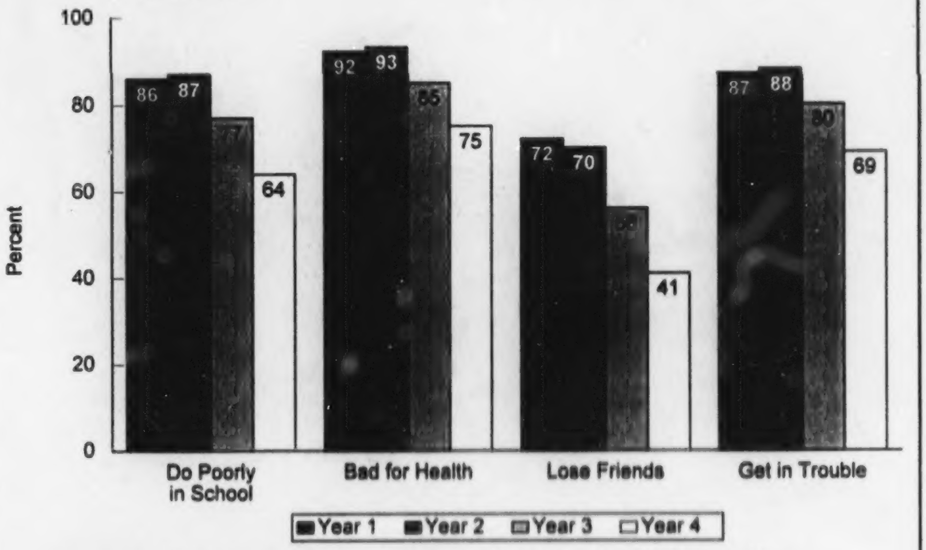
Exhibit 2-27. Percent of Students Who Said They Agree with Consequence, for Marijuana



Interpretation: "Eighty-six percent of all students surveyed in Year 1 (grades 5 and 6) agreed that 'smoking marijuana makes students do poorly in school.'"

Note: Response categories were: "agree", "neither agree nor disagree", and "disagree."

Source: Student Survey 1992-95 (items 19-112); N=7,221

Same-Grade Comparisons

We compared the two cohorts at the points in time when they were in the same grade (e.g., the older cohort's sixth grade responses in 1992 compared with the younger cohort's sixth grade responses in 1993, etc.), to see whether students at the same grade level gave similar responses. The cohorts were compared at the sixth, seventh, and eighth grade levels. Results for drug use, attitudes and perceptions, and views on consequences of drug use were nearly identical in many cases for both cohorts, when the groups were compared at the same grade level. This finding suggests that many of these behaviors and attitudes have a strong association with age that is highly predictable. As we also observed, however, one group (the younger cohort) experienced a more accelerated rate of change in drug use, attitudes and perceptions than the other, suggesting that additional factors influenced the course of these student outcomes. Students in both cohorts in all likelihood received similar prevention programs in each district because they differed by only one grade; therefore, their slight variations in outcomes may be due more to factors outside of the programs. One such factor may be changes in availability and popularity of different drugs (as was the case with marijuana and inhalants during this study) as well as social attitudes towards drug use. Depending on the students' age or maturity level, these changes may have affected each cohort differently.

Implications of Findings for Programs

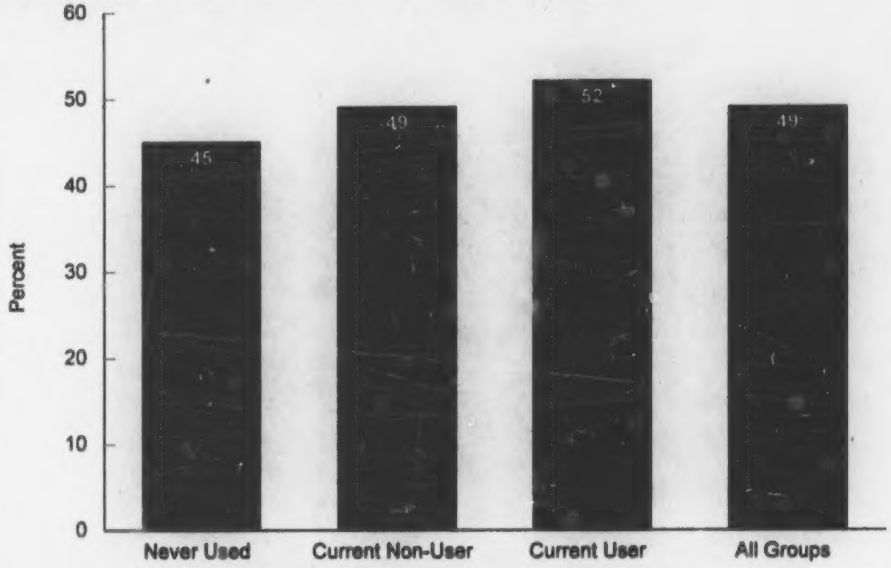
The results on cohort variations presented in this section have several implications for program development and evaluation. First, the sensitivity of drug use behaviors, attitudes, perceptions, and general views on drug use to small variations in age, would seem to suggest that drug prevention programs need to be tailored to the age of the students to be more effective. A program that serves a wide range of grades with the same program components will likely have maximal effects for one or two grades but be much less effective at lower or higher grades. Second, these results show that changes in student drug use and attitudes occur rapidly with age and therefore programs must keep pace with students' changing views. While measures of self-esteem and refusal skills did not appear to vary greatly for students over the four years, their attitudes, perceptions of peer attitude and use, and their beliefs of drug use consequences, all exhibited rapid declines. These declines were matched with similarly dramatic increases for actual drug use. Third, the differences in outcomes for the two cohorts would suggest that in evaluating programs through the use of student responses to a survey, care must be taken to both collect and report these data separately by age or grade, or the impact of a program may be lost in collapsing data from wide-ranging age groups.

Profiles of Users and Non-Users

To better understand how students who use drugs differ from those who do not, we examined student characteristics for three groups of individuals: (1) never used — those who reported never trying drugs during the four years of the survey; (2) current non-users — those who reported trying one or more drugs in the past but had not used any in the 30 days prior to the 1995 survey; and (3) current users — those who reported trying one or more drugs in the past ***and*** using one or more drugs in the 30 days prior to the 1995 survey.

As shown in ***Exhibit 2-28***, the proportion of males (vs. females) was slightly higher in the user group compared to the non-user groups and the study sample as a whole. The racial/ethnic distributions of the three groups were somewhat different as shown in ***Exhibit 2-29***. The group of current users appeared to have relatively more Hispanics and fewer white students than the "never-used" group and the study sample as a whole. There were also relatively more African-American students among those who were currently abstaining from drug use compared to those in the other two groups and the study sample as a whole.

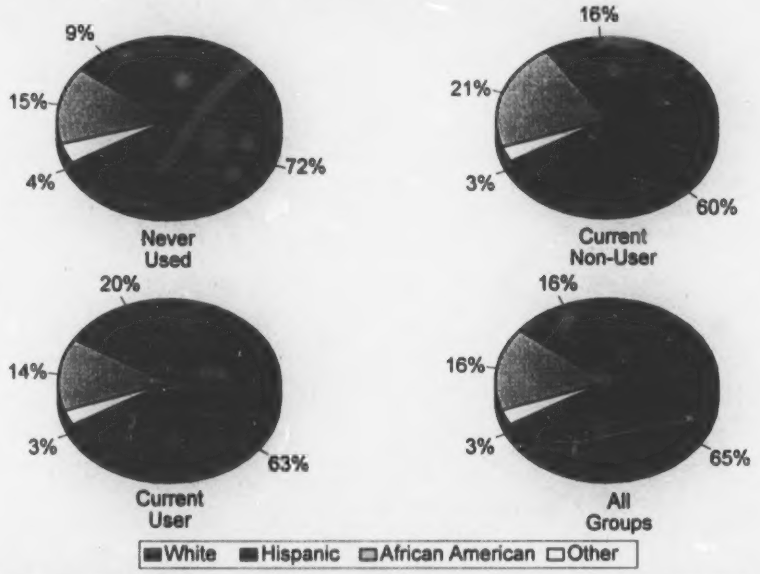
Figure 2-28. Percent of Males in Each Drug Use Group



Interpretation: "Among students who had never used drugs, 45 percent were male; among students who were currently using drugs, 52 percent were male."

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Figure 2-29. Racial/Ethnic Distribution of Drug Use Groups



Interpretation: "Among students who had never used drugs, 72 percent were white, compared with 63 percent among those currently using drugs, and 65 percent of students in the sample as a whole."

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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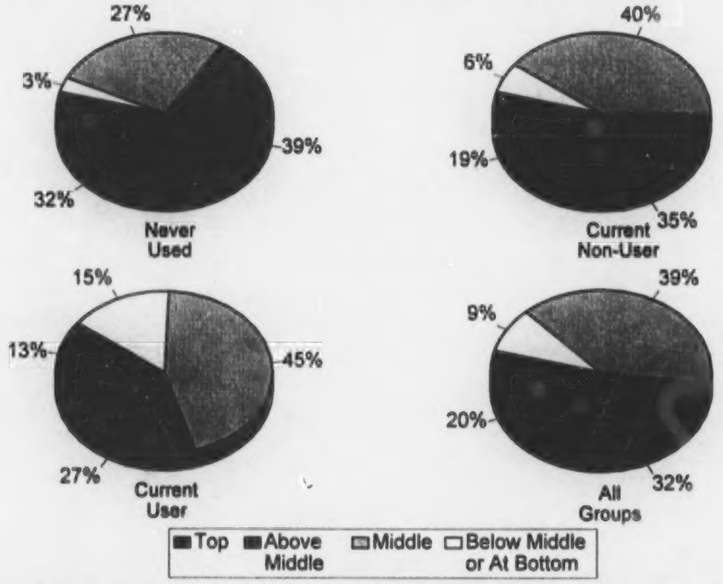
We asked students to state how they believed they ranked academically among their classmates in 1995. As ***Exhibit 2-30*** shows, the distributions of non-users (ever or not currently) were skewed towards the higher rankings whereas the users tended towards middle-to-low self-rankings. Additionally, students in the non-user groups had higher aspirations for their educational attainment than the user group (***Exhibit 2-31***). Both parents of non-users (ever or currently) also tended to be more educated than those of current users, as indicated on ***Exhibits 2-32*** and ***2-33***.

A measure that was designed to clarify for students how they should answer subsequent questions on drug use, actually resulted in an interesting item in itself, since it showed strong group differentiation for use levels. This item asked students whether their parents allowed them occasional use of alcohol in small quantities. As shown in ***Exhibit 2-34***, many more current users (71 percent) said their parents allowed them sips of alcohol as 8th and 9th graders compared to current non-users (55 percent) or those who never tried drugs (24 percent). An examination of the year 1 data (when students attended the fifth and sixth grades) indicated that this relationship between drug use and parental decisions for occasional alcohol use was already

Exhibit 2-30. Self-Reported Class Rank of Drug Use Groups



Interpretation: "Among students who had never used drugs, 32 percent said they were at the top of their class, compared with 13 percent among those currently using drugs."

Source: Student Survey 1992-95 (items A2, E1-E25); N=7,221

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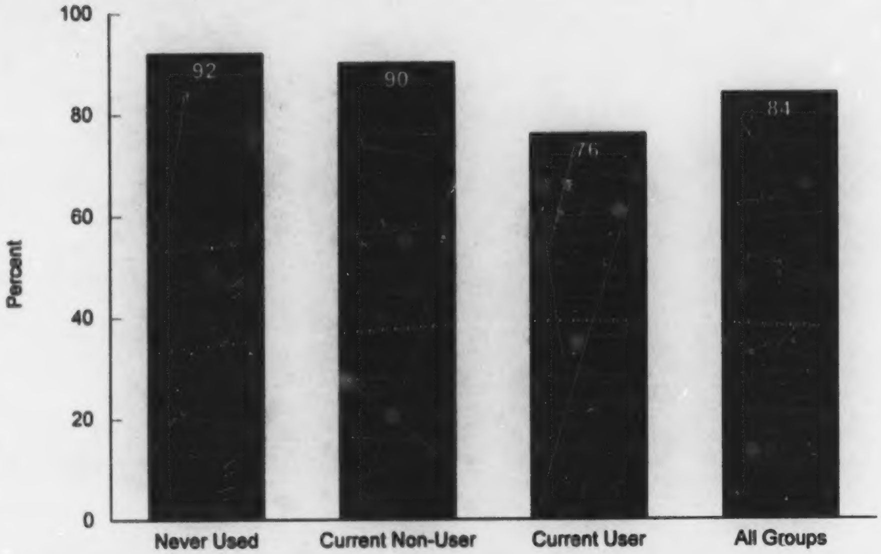
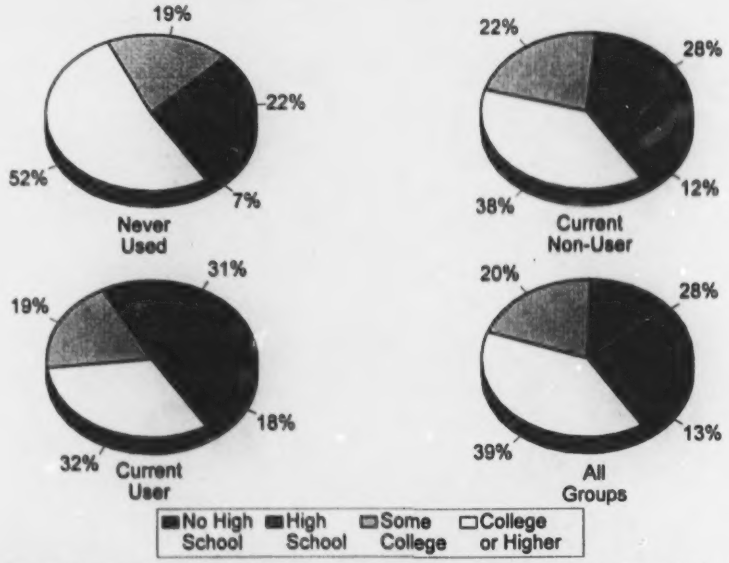
Exhibit 2-31. Proportion of Students in Each Drug Use Group Who Plan to Attend College



Interpretation: "Among students who had never used drugs, 92 percent said they planned to go to college, compared with 76 percent among those currently using drugs."

Source: Student Survey 1992-95 (items A4, E1-E25); N=7,221

Exhibit 2-32. Highest Schooling Obtained by Fathers, by Drug Use Group



Interpretation: "Among students who had never used drugs, 52 percent reported that their fathers had completed college or higher, compared with 32 percent among those currently using drugs."

Note: Excludes "don't know" responses.

Source: Student Survey 1992-95 (items A5, A7, E1-E25); N=7,221

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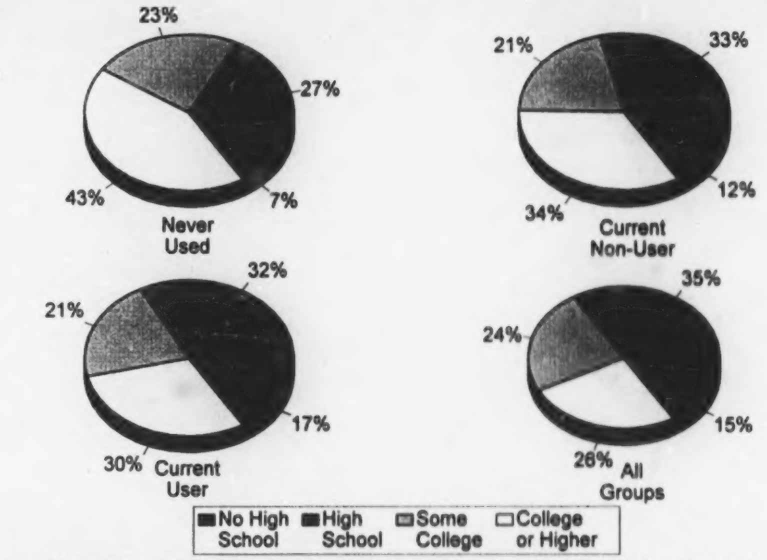
Exhibit 2-33. Highest Schooling Obtained by Mothers, by Drug Use Group

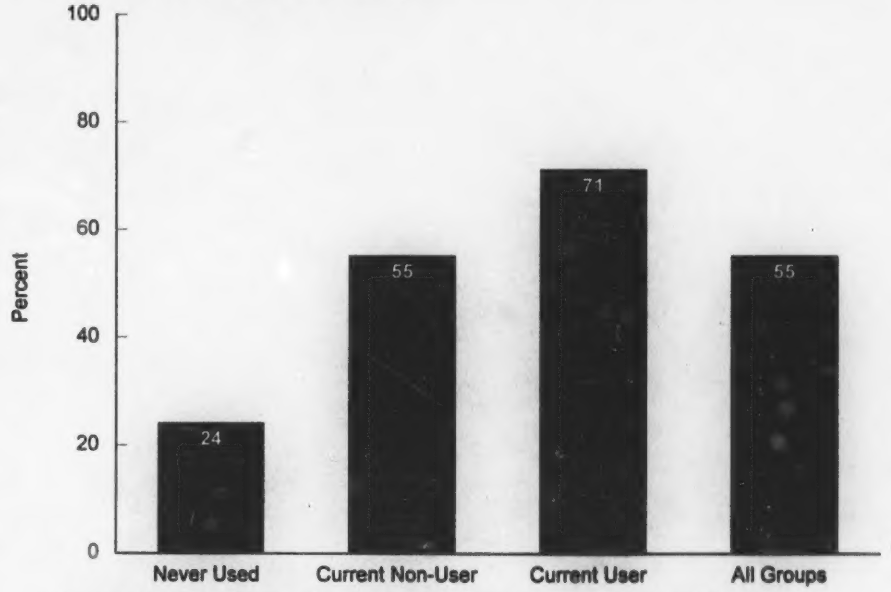


Interpretation: "Among students who had never used drugs, 43 percent reported that their mothers had completed college or higher, compared with 30 percent among those currently using drugs."

Note: Excludes "don't know" responses.

Source: Student Survey 1992-95 (items A5, A7, E1-E25); N=7,221

Exhibit 2-34. Proportion of Students in Each Drug Use Group Whose Parents Allow Them Sips of Alcohol



Interpretation: "Among students who had never used drugs, 24 percent reported that their parents allowed them occasional sips of alcohol, compared with 71 percent among those currently using drugs."

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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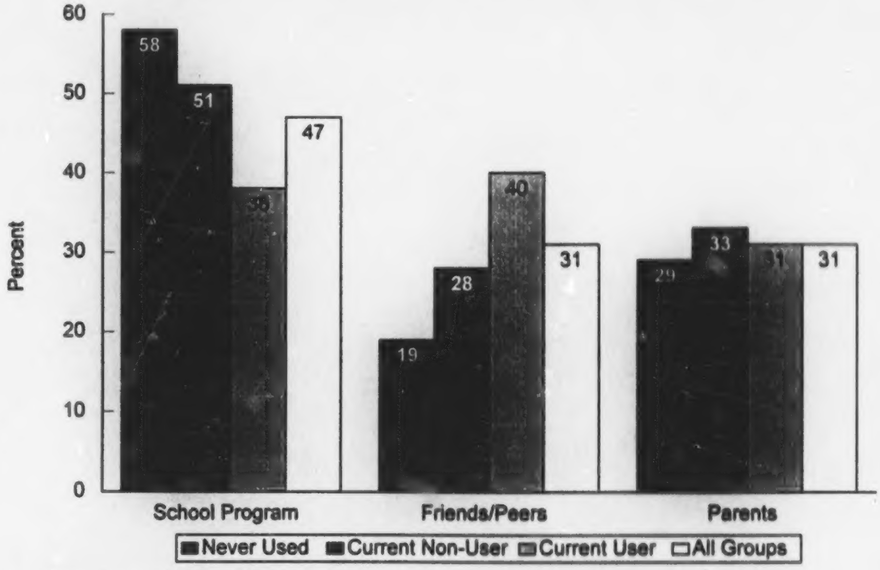
evident at that time. Fifty-eight percent of 1995 users were allowed alcohol sips as young teenagers compared with current non-users (47 percent) and students who never tried drugs (27 percent).

Another measure on which we compared the different use groups was the source for students' information on alcohol and other drugs. As the data show in ***Exhibit 2-35***, students who never tried drugs and current non-users were more likely to say they obtained their information from their school program than current users, whereas current users were more likely to name friends and peers than the non-user groups. A similar percentage in all groups said this information had come from their parents.

Users and non-users of drugs also showed different experiences with violent behavior in schools. As the data in ***Exhibit 2-36*** show, a much larger percent of current users of alcohol and other drugs (32 percent) reported being involved in school fights as the aggressors than did current non-users (14 percent) or students who had never tried drugs (6 percent). The data also showed that current users of drugs were more likely to be victimized than non-users. While 15 percent of those who never used drugs and 21 percent of current non-users said they had been the victims of school fights in the preceding six months, 33 percent of users said they had the

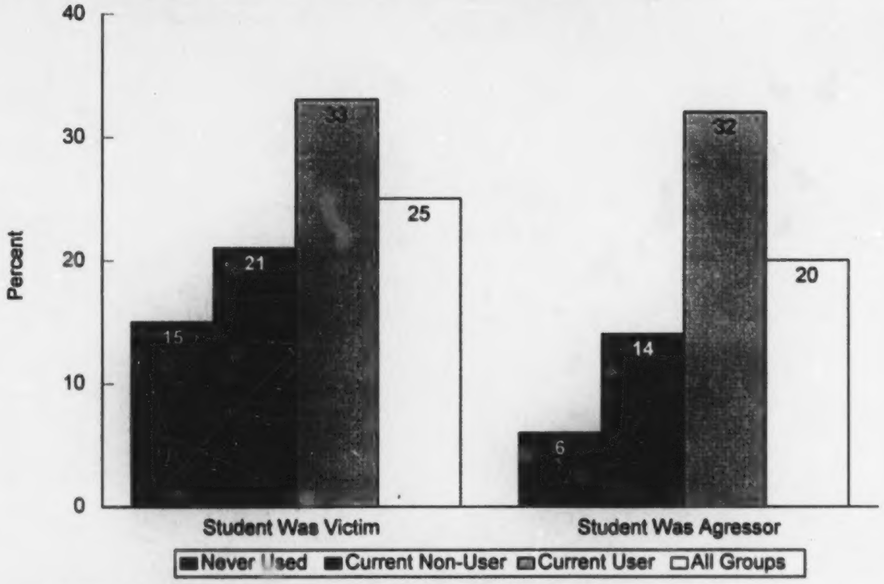
Exhibit 2-35. Proportion of Students in Each Drug Use Group Who Obtained "a lot" of Their Alcohol and Other Drug Knowledge from Each Source



Interpretation: "Among students who had never used drugs, 58 percent reported that they obtained 'a lot' of their information on alcohol and other drugs from their school program, compared with 38 percent among those currently using drugs."

Source: Student Survey 1992-95 (items H4, E1-E25); N=7,221

Exhibit 2-36. Proportion of Students in Each Drug Use Group Who Were Involved in Fights at School in the Past Six Months



Interpretation: "Among students who had never used drugs, 15 percent reported being victims of fights at school, compared with 33 percent among those currently using drugs."

Source: Student Survey 1992-95 (items J6, J7, E1-E25); N=7,221

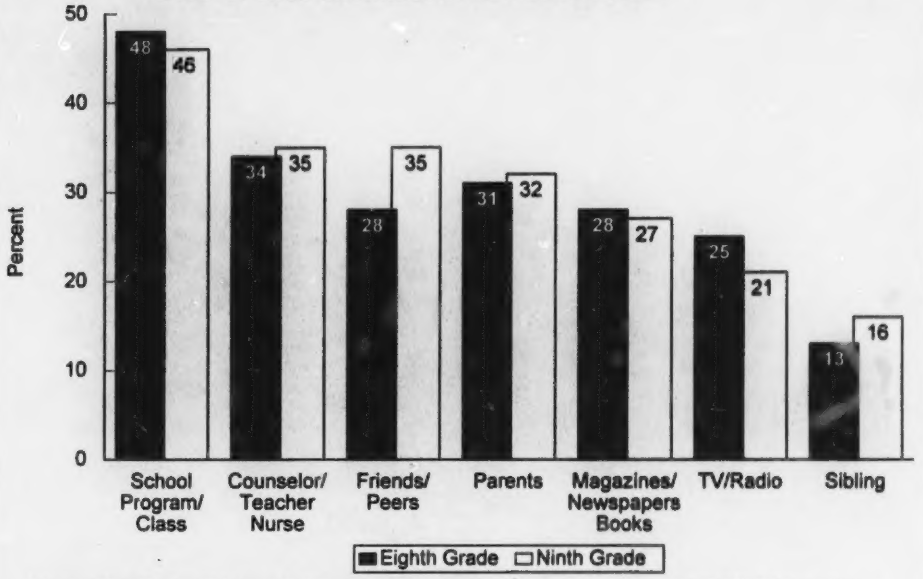
same experience. Clearly, both behaviors, the drug use and the violence, appear to be associated. In the next chapter we explore this relationship further.

What Students Say About Their Use of Drugs

As presented in a previous section of this chapter, the DFSCA survey asked students about their use of alcohol and other drugs over a period of four years. Students also gave related information that helps to provide a context for their drug and alcohol use, such as the locations in which they are most likely to use drugs, the sources of information they are exposed to, and the people in their lives they feel comfortable asking for help.

Although students may obtain the majority of their "facts" about drugs and alcohol through their school prevention program, they are also exposed to, and absorb information through a wide variety of other sources, including individuals with whom they socialize, television and radio commercials, and printed material. We asked students what they thought the sources were for their current knowledge of drugs and alcohol. Results shown in *Exhibit 2-37* for eighth and ninth graders in 1995 indicate that students do in fact believe that

Exhibit 2-37. Percent of 8th and 9th Grade Students Who Say They Obtained "a lot" of Their Information From Each Source



Interpretation: "Forty-eight percent of 8th-grade students reported that they obtained 'a lot' of their information on alcohol and other drugs from their school program or class."

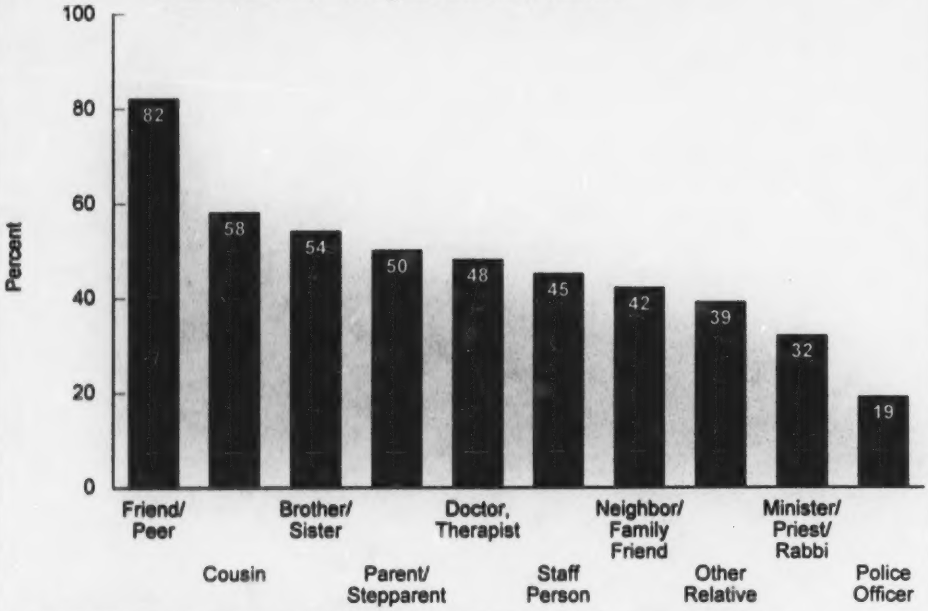
Note: Response categories were "none", "some", and "a lot."

Source: Student Survey 1995 (item H4); N=7,843

the majority of what they know was passed on to them through their school program; almost half (47 percent) said they obtained "a lot" of their information this way. Perhaps associated with the school program, school staff themselves were also a source of information for 35 percent of the students. In addition, 32 percent said they learned from their parents and 32 percent said they learned from their friends and peers. Interestingly, the two cohorts placed slightly different weights on the latter two sources of information; the eighth graders gave slightly more credit to their parents (31 percent) than to their friends and peers (28 percent) for their knowledge of drugs and alcohol, while the ninth graders responded in the opposite way; 35 percent named friends and peers, while 32 percent named parents as a source of information. About one-fourth or fewer of the students said they received information through the media or through their siblings.

The survey also asked students from whom they would consider seeking help, if they ever had a problem with drugs or alcohol. As the data show in ***Exhibit 2-38***, the majority of students in both groups (82 percent) placed friends and peers above all others, including parents (50 percent), brothers or sisters (54 percent), school staff (45 percent), doctors, therapists or counselors (48 percent), or their priest, minister or rabbi (32 percent). Also fairly high on the

Exhibit 2-38. Percent of 8th and 9th Grade Students Who Would Seek Help From Individuals for a Drug or Alcohol Problem



Interpretation: "Eighty-two percent of 8th and 9th-grade students reported that if they had a drug or alcohol problem they would seek help from a friend or peer."

Source: Student Survey 1995 (item H5); N=7,843

list were cousins, whom 58 percent of students said they would consult.[5] Fewer students (19 percent) said they would consult a police officer.

Results presented previously for lifetime and 30-day use of drugs and alcohol among study participants make it clear that students are able to find places in which to experiment with these drugs, away from school staff and parents. Survey results presented in ***Exhibit 2-39*** for eighth and ninth graders (year 4) indicate that the most common locations for drinking alcohol are friends' houses (42 percent) and parties (40 percent). Perhaps the finding of greatest concern is that 37 percent of eighth and ninth graders say that in the past year they had alcohol at least once or twice in their own home and 27 percent said they had alcohol at a relative's home, although the question did not ask students to specifically exclude alcohol use allowed by their parents. Students also named parks (29 percent) and cars (23 percent) as additional places to drink alcohol. While administrators in most of the schools we visited told us that there was little

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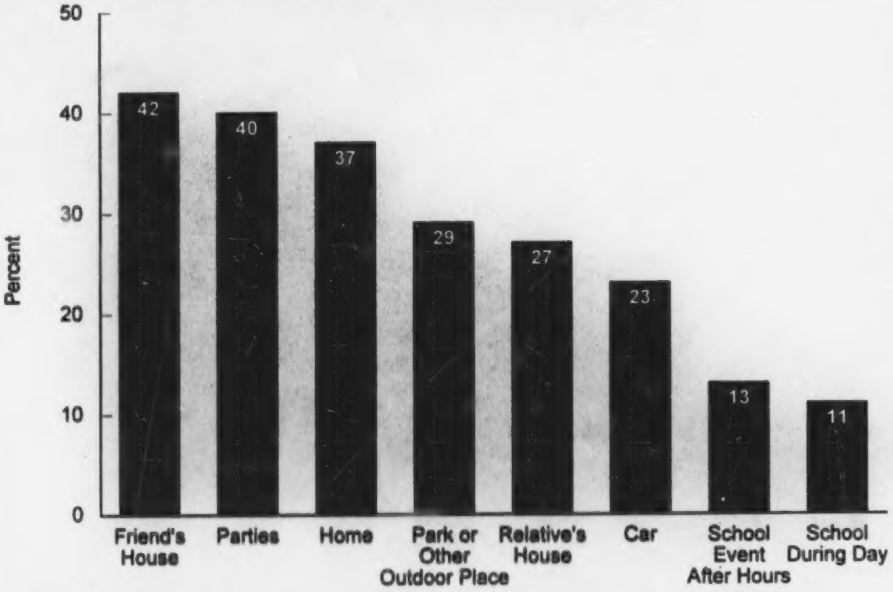
[5] This category was in fact not among those listed on the survey but was coded from responses to the "other " category.

Exhibit 2-39. Percent of 8th and 9th Grade Students Who Used Alcohol at Least Once or Twice in the Past Year at the Location



Interpretation: "Forty-two percent of 8th and 9th-grade students reported that during the past year they had used alcohol at least once or twice at friends' houses."

Source: Student Survey 1995 (item E27); N=7,843

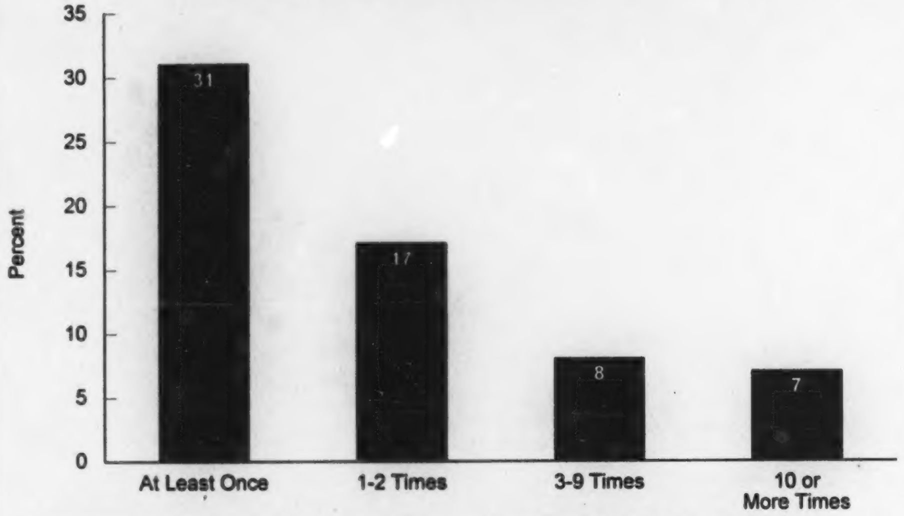
or no drug use on their school property, students' reports indicate some use there. Thirteen percent of eighth and ninth graders said they drank alcohol at after-hours school events, and 11 percent reported drinking at school during the daytime.

The combination of drinking (or using other drugs) and driving a vehicle is one of great concern to parents, school staff and the public in general since it accounts for half of all traffic accidents and affects thousands of victims each year.[6] As ***Exhibit 2-40*** shows, 31 percent of eighth and ninth grade students surveyed said that during the prior month they rode in a vehicle driven by a person who had been drinking alcohol or using other drugs. Specifically, 17 percent said this happened one or two times, 8 percent said it happened three to nine times, and another 7 percent said they had been in this situation ten or more times in the past 30 days.

---

[6] National Highway Traffic Safety Administration

Exhibit 2-40. Percent of 8th and 9th Graders Who in the Past 30 Days Rode in a Vehicle Driven by Someone Who Had Been Using Alcohol or Other Drugs,[a] by Frequency of Occurrence



Interpretation: "Thirty-one percent of 8th and 9th-grade students reported that at least once during the past thirty days they were in a vehicle driven by someone who had been using alcohol or other drugs."

[a] Drugs were not defined for this item and may include cigarettes for some respondents. The question asked: During the last month (30 days), how many times have you been in a car or truck or on a motorcycle driven by someone who had been drinking alcohol or using other drugs?

Source: Student Survey 1995 (item E26); N=7,795

Chapter 3. Home, School, and Community Risk Indicators

In this chapter we provide a context for the students' drug use and attitudes we reported in the previous chapter. We discuss some of the risk factors of the students' home, school, and community environments that appear to be associated with the observed outcomes for drug use and behaviors.

The School Environment

This section describes the level of school violence and gang activity reported by the students in the study. Additionally, we examine the students' experience with school during the four years of the study and compare outcomes for drug use and attitudes for students with different experiences.

Reported Violence and Gang Activity

Our findings indicate that students face a significant amount of violence and gang activity in and around the schools. In particular, we found the following:

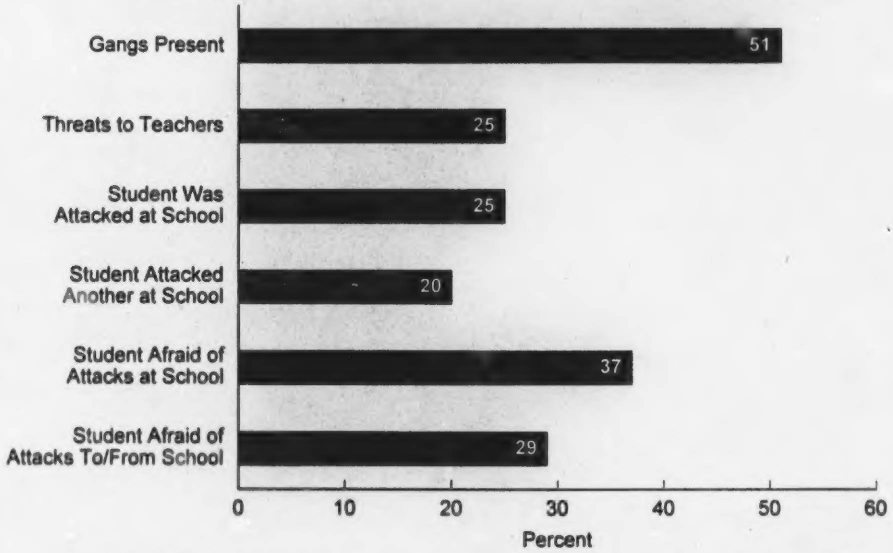
Study Findings:
Reported Violence and Gang Activity

- One-fifth to one-half of 8th and 9th graders witnessed, experienced, or were aware of violence in school in the previous six months directed at teachers and students in 1995.
- Reported violence was less prevalent in rural districts than in either suburban or urban districts. One exception was gang activity, which was reported with similar frequency in rural (50 percent), suburban (50 percent), and urban districts (53 percent).
- Students were more concerned with safety immediately outside the school than inside the school. One fourth or more were concerned with safety in school parking lots and the surrounding neighborhoods.
- Higher levels of reported gang activity and violence in the school were significantly associated with greater drug use and more tolerant views towards drugs.

As ***Exhibit 3-1*** shows, 20 to 50 percent of students surveyed in 1995 (8th and 9th graders) had witnessed, experienced or were aware of violence in school. Over half (51 percent) of the students said that gangs were present at their school. (The survey did not define the term "gangs" but asked about gangs in the context of items about violence and safety.) Between 20 and 25 percent of the students witnessed threats to teachers, were victimized by a student, or were themselves involved in attacks against other students in the previous six months. Further, 37 percent acknowledged being afraid of such attacks at school and 29 percent said they feared such attacks when traveling to and from school. As one student wrote on his survey, "I don't like how dangerous it is at this school. I just wish the teachers and the rest of the school staff would have better control over their students and keep kids like me safe."

Violence was less prevalent in rural districts than in either suburban or urban districts (see ***Exhibit 3-2***); students attending rural schools reported much fewer incidents of threats against teachers and somewhat fewer incidents of attacks against students, involvement in fights, and fears when going to and from school. One aspect of violence that appears equally likely in rural schools as in other schools is the perception of gang activity; 50 percent of students in rural districts (the same as reported in suburban districts) said there were gangs at their school. As

Exhibit 3-1. Percent of 8th and 9th Grade Students Reporting Violence and Gang[a] Activity at School During the Previous Six Months (1995)



Interpretation: "Fifty-one percent of 8th and 9th-grade students reported that street gangs were present at their school."

[a] The survey did not define "gang."

Source: Student Survey 1995 (items J1-J9); N=7,843

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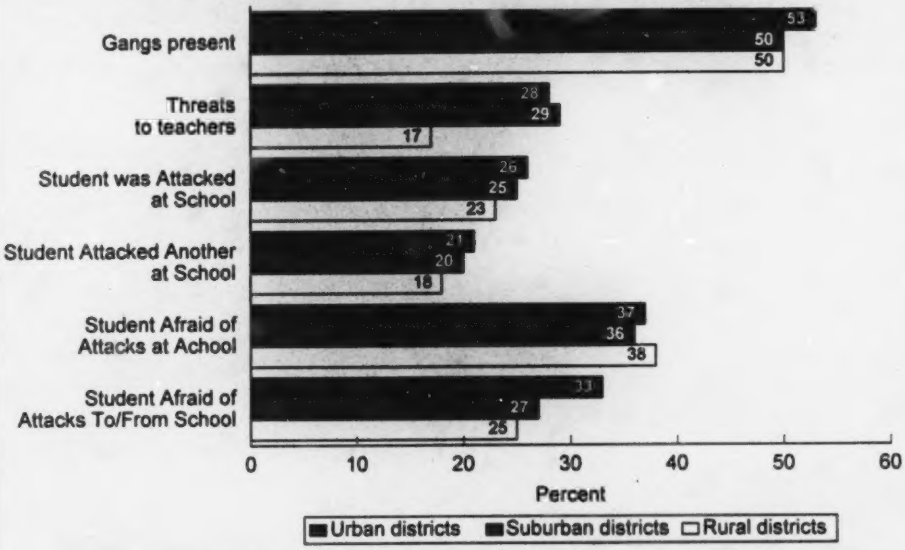
Exhibit 3-2. Percent of 8th and 9th Grade Students Reporting Violence and Gang[a] Activity at School During the Previous Six Months, by Population Density (1995)



Interpretation: "Fifty-three percent of 8th and 9th-grade students in urban school districts and 50 percent of students in rural school districts reported that street gangs were present at their school."

[a] The survey did not define "gang."

Source: Student Survey 1995 (items J1-J9); N=7,843

one student commented, "I really like this school, but I would like it a whole lot better if it weren't packed with gangs. They are ugly and they scare me." Students attending rural schools were also as concerned with safety from attacks at school (38 percent) as were students attending suburban (36 percent) or urban schools (37 percent).

Students expressed concern for their safety both in school and in areas around the schools and, as a result, avoided these areas, as the data in ***Exhibit 3-3*** indicate. In general, more students were concerned about safety immediately outside the schools, such as the parking lot and other school grounds (25 percent) and the surrounding neighborhood around the school (29 percent), than inside the schools. As one student so poignantly described in a written comment, "Sometimes I feel unsafe walking home myself. Many times there are gangs and they are really mean. Sometimes I have to hide in the hospital or walk up somebody's steps to their house and act like I live there." Within the school buildings, 20 percent said they avoided the bathrooms because they felt unsafe there, 14 percent avoided the gym or locker room, and 9 percent expressed concern for safety in the school cafeteria.

Exhibit 3-3. Percent of 8th and 9th Grade Students Who Avoid Places at Least Some of the Time Because of Safety Concerns (1995), by School District

	Places Avoided by Students				
District	Bathrooms	School Cafeteria	Gym or Locker Room	Parking Lot or Other Grounds	Neighborhood Around School
1	26%	9%	16%	39%	39%
2	18%	4%	12%	15%	20%
3	23%	12%	14%	22%	32%
4	11%	5%	7%	15%	18%
5	20%	9%	10%	20%	14%
6	28%	16%	22%	26%	38%
7	20%	11%	18%	31%	31%
8	19%	8%	14%	23%	21%
9	12%	5%	7%	20%	15%
10	17%	4%	11%	20%	31%
11	9%	6%	7%	16%	11%
12	26%	14%	20%	29%	46%
13	18%	7%	11%	23%	24%
14	19%	9%	15%	24%	26%
15	35%	23%	24%	34%	34%
16	17%	7%	11%	23%	32%
17	28%	18%	24%	29%	31%
18	20%	9%	13%	27%	38%
19	14%	7%	7%	25%	36%
All Districts	20%	9%	14%	25%	29%

Interpretation: "Twenty-six percent of participating students at school district 1 reported that they sometimes avoided the bathrooms because of safety concerns, while 39 percent said they avoided the neighborhood around their school."

Source: Student Survey 1995 (item J10); N=7,843

Across districts, there was considerable variability in how safe students felt in and around their schools. Consistent with other results in this section, students attending school in rural districts expressed less concern about safety than those in urban or suburban schools. For example, comparatively fewer students attending schools in districts 9 and 11, both small, rural districts in Midwestern states, were concerned about safety in or out of school buildings. In contrast, in urban districts 1, 12, and 15, and in suburban districts 6 and 17, more students avoided all these locations. The study's field data collectors in district 15 were well aware of the increased violence in their schools, where 35 percent of students said they avoided the bathrooms and 34 percent were concerned about the surrounding areas outside the school. While conducting the student survey, sessions were once interrupted because of a stabbing with a pencil, another time by a cherry bomb that exploded in a bathroom, and yet another time by a paper fire that was set in a hallway. The prevention program coordinator in this district believes that the increase in violence observed at the schools over the four years of the study is a

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reflection of the rise in the incidence of violence in the community; further, she believes that the community violence is related to increasing poverty and drug abuse. In district 12, where 46 percent of the students said they were concerned about the neighborhoods surrounding their schools, the district prevention program office is housed in a building with a tower guard and surrounded by a tall fence with barbed wire. Even so, the walls in this building show several dents and bullet holes. The prevention program coordinator reported increases in weapons-related incidents at the schools during the last several years of the study. To counteract this increase, the district placed hand-held metal detectors in the middle and high schools, added more cameras on buses, and developed a parent patrol program to assist with surveillance.

Relationship of School Violence to Student Drug Use and Attitudes

To examine the relationship between these indicators of school violence and student drug use and attitudes, we conducted multiple regression analyses to predict lifetime exposure to all drugs and general attitudes towards drugs, using gang activity, level of violence against students and teachers, and overall safety concerns as predictors.[1] (We included the year 1 measures of exposure and attitudes as covariates.) These regression analyses allow us to examine the predictive power of a group of variables that logically form a set and at the same time to test the strength of the unique relationship between each variable in the set and the outcome variable. By including multiple variables in one analysis we are able to hold constant the variance accounted for by others in the set and examine the independent contribution of each predictor. As the results in ***Exhibit 3-4*** indicate, both gang activity and level of violence (but not safety concerns) significantly predicted the two outcomes. Students who attended schools in which either gangs or violence (or both) were reported were significantly more likely than other students to use drugs, and they held more tolerant views toward drugs.

To summarize, these data indicated that students and teachers, particularly those in non-rural schools, experienced or witnessed a significant amount of violence in school during the three years of the study in which we included violence-related questions on the survey.

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[1] Each of the variables in these analyses was a composite of two or more single variables on the same topic. Each variable was measured at the student level. All regression analyses reported in this chapter were pooled across districts.

Exhibit 3-4. Relationship Between School Violence and Student Drug Use and Attitudes: Multiple Regression Analyses Using School Violence as the Predictor

Dependent Variable: Lifetime Drug Exposure in Year 4[a]
Model R^2=24% (F=543.12;[c] df=4, 6795)

Independent Variables	b	t-test
Lifetime drug exposure in Year 1 (covariate)[a]	.81	39.56[c]
Presence of gangs	1.08	11.04[c]
Level of violence against students and staff	1.44	14.31[c]
Safety concerns	-.06	-2.19

Dependent Variable: General Attitudes Towards Drugs in Year 4[b]
Model R^2=12% (F=211.52;[c] df=4, 6715)

Independent Variables	b	t-test
General attitudes towards drugs in Year 1 (covariate)[b]	.50	20.48[c]
Presence of gangs	-1.65	-11.57[c]
Level of violence against students and staff	-1.93	-13.09[c]
Safety concerns	.04	1.17

Interpretation: The model R^2 for each regression analysis indicates the proportion of variance in the outcome variable that can be explained by the set of independent variables. The t-test associated with each independent variable tests that variable's unique contribution to the overall R^2.

[a] Higher values on this variable indicate more drug use.

[b] Higher values on this variable indicate more of the attributes desired by programs.

[c] Statistically significant at p<.0001.

Source: Student Survey 1992-95; N=7,221

Students' School Experience

In this section we examine students' experiences with school and the relationships between these experiences and students' attitudes, behaviors, and involvement with drugs.

Study Findings:
Students' School Experience

★ Thirty-seven percent of eighth and ninth graders said they hated school often or almost always while 35 percent indicated they enjoyed school during the current year.

★ Positive school experiences during the current school year and more time spent on academic activities in general were associated with less drug use, more desirable attitudes towards drugs, and higher self esteem.

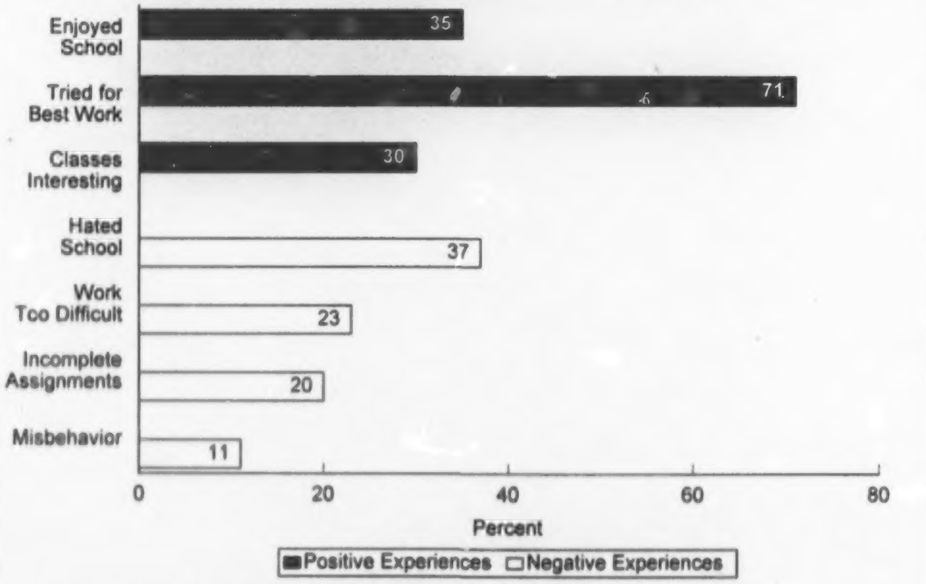
— Continued on next page

Study Findings:
Students' School Experience

- **Thirty-four percent of the students spent less than an hour a day on homework while 78 percent spent an hour or more a day on television, videos or computer games.**
- Students spent more of their out-of- school time socializing with friends and engaging in sports or exercise, and the least amount of time doing volunteer work.
- While some activities such as car rides and parties were associated with less desirable outcomes for drug use and attitudes, other activities such as volunteer work, sports, and spending more time on homework were associated with healthier student outcomes.

The student survey asked students to respond to questions about their school experience during the current school year, both positive and negative. In 1995 approximately 35 percent of the students said they enjoyed school often or almost always while 37 percent said they hated school (see ***Exhibit 3-5***). Classes were interesting most of the time for 30 percent of the students but 23 percent found their school work too difficult to understand. Twenty percent routinely failed to complete assignments while 11 percent misbehaved enough to be sent to the office or

Exhibit 3-5. Percent of 8th and 9th Grade Students Who Had Positive or Negative Experiences Often or Almost Always During Year 4



Interpretation: "Thirty-five percent of students reported in year 4 (8th and 9th grades) that they enjoyed school, while 71 percent said they tried to do their best work at school."

Source: Student Survey 1995 (item F4); N=7,843

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have to stay after school. Encouragingly, almost three-quarters of the students (71 percent) said they tried to do their best work at school.

To examine how these experiences might be associated with students' drug use and other behaviors, we present in ***Exhibit 3-6*** the correlation coefficients between each student outcome variable and a composite score of school experience derived from each of the items above. All relationships with school experience were highly significant: a positive school experience was associated with less drug exposure for lifetime and recent use, more desirable attitudes towards drugs, perceptions of more desirable attitudes for peers, higher self-esteem, greater resistance against peer pressure to use drugs, and greater acknowledgment of the consequences of using drugs. These findings underscore the strong association between these indicators of academic interest and success and student behaviors, including drug use, attitudes, and feelings of self-worth. However, these correlations between variables do not necessarily imply that one caused the other, merely that they are related.

An additional question of interest was whether student groups with different drug use experiences also had different academic experiences. We examine these differences for two sets

Exhibit 3-6. Correlations Between School Experience[a] and Student Outcomes in Year 4

	Significant Correlation[d] with School Experience
Lifetime exposure to drugs in Year 4[b]	-.44
30-day exposure to drugs in Year 4[b]	-.44
General attitudes towards drugs[c]	.48
Attitudes towards specific drugs[c]	.47
Perceived peer attitudes[c]	.24
Self esteem[c]	.38
Resistance to peer pressure[c]	.23
Perceived consequences of drug use[c]	.39

Interpretation: A negative correlation means that higher values on one variable are associated with ***lower*** values on the other variable, whereas a positive correlation means that higher values on one variable are associated with higher values on the other variable. The larger the number, the stronger the relationship, regardless of the sign. "School experience is negatively correlated with lifetime exposure to drugs (-.44) and positively correlated with general attitudes towards drugs (.48); that is, positive school experiences are associated with lower drug use and more desirable attitudes towards drugs."

[a] Scores on items indicating negative experiences were reversed such that larger values on the composite variable indicated a more positive school experience.

[b] Higher values on this variable indicate more drug use.

[c] Higher values on this variable indicate more of the attributes desired by programs.

[d] All correlations significant at $p<.0001$

Source: Student Survey 1995; N=7,221

of comparison groups: (1) those who were ***not*** current users of drugs vs. those who were; and (2) those who delayed experimentation with drug use beyond Year 1 or indefinitely vs. those who began using drugs as early as Year 1. We present results of these two t-tests in ***Exhibit 3-7*** to compare the school experiences for students in each group. The composite school experience variable was significantly more positive for students who were not currently using drugs (mean = 21.03) compared to those who were (mean = 18.35). As well, those who delayed drug use (or never used drugs at all) had a better school experience (mean = 20.32) than those who began experimenting with alcohol and other drugs as early as the fifth and sixth grades (mean = 19.13).

As an indicator of the relative time students allocated to homework compared to non-academic activities, we asked students to indicate the amount of time they spent each day in either of two activities: (1) doing homework either at school or at home; and (2) watching television or videos, or playing computer or video games. As the distribution of time spent on these activities shown in ***Exhibit 3-8*** indicates, students spent a great deal more time each school day on the non-academic activities. Approximately one-third (34 percent) spent less than an hour a day on homework and 86 percent spent no more than three hours doing homework both at school and at home. In contrast, 78 percent of the students spent an hour or more a day on television, videos, or games, and 38 percent of the students spent more than three hours daily on these activities.

To study how these two indicators of students' time devoted to academic vs. non-academic activities related to outcomes for students in Year 4, we computed item correlations as

Exhibit 3-7. Differences in School Experience Among Groups with Different Drug Use Histories[a]: t-tests for Differences in Mean School Experiences

	Mean	Std. Error	t-test
No current use	21.03	.05	
Current use	18.35	.07	31.96 (df=6398)[b]
No early use	20.32	.06	
Early use	19.13	.07	13.56 (df=7066)[b]

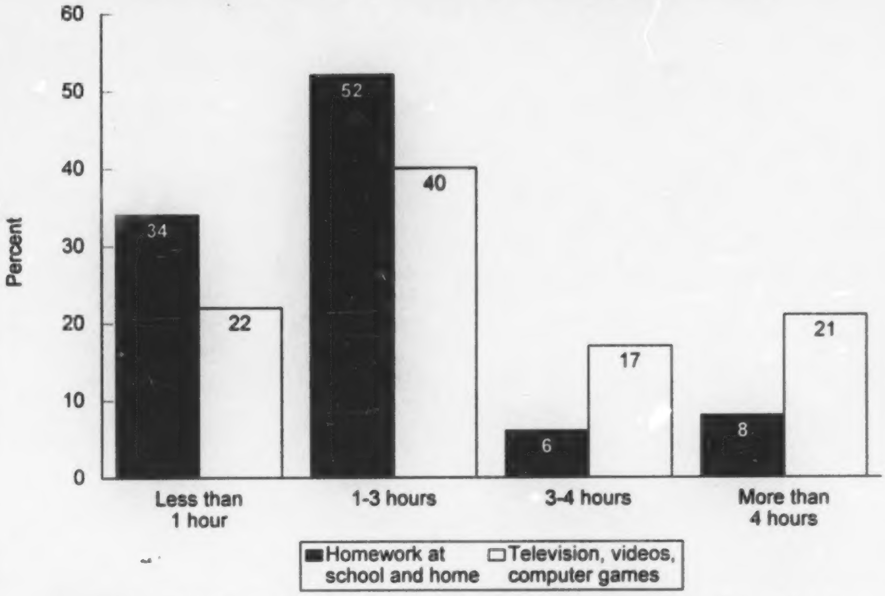
Interpretation: "Students who were *not* currently using drugs reported significantly more positive school experiences (mean=21.03) than those who were currently using drugs (mean=18.35)."

[a] No current use = used in lifetime but not currently; current use = currently using drugs or alcohol. No early use = no use in Year 1; early use = used drugs in Year 1.

[b] Statistically significant at p<.0001

Source: Student Survey 1992-95; N=7,146

Exhibit 3-8. Percent of 8th and 9th Grade Students Spending Time on Homework vs. Television and Videos During an Average School Day



Interpretation: "Thirty-four percent of 8th and 9th-grade students reported spending less than one hour on homework a day."

Source: Student Survey 1995 (items F1, F2); N=7,843

presented in ***Exhibit 3-9***. As one might have predicted, the correlations indicated that greater time spent on homework was highly associated with lower drug use, healthier attitudes and perceptions towards drugs, higher self-esteem, greater resistance to peer pressure, and greater perceptions of the consequences of drug use. On the other hand, more time spent on television, videos, or games was significantly associated with undesirable results for drug use, and all behaviors and attitudes.

We compared the time spent on these two activities by students who experienced different levels of drug use to examine what relationship these indicators of academic interest might have with their drug use and other behaviors. As ***Exhibit 3-10*** shows, it is clear that students who are current users or those who started using drugs early on, make very different uses of their time than students who do not use drugs or did not start using drugs early on. Students who were not current users of alcohol or other drugs spent a significantly greater amount of time doing homework and significantly less time on the non-academic activities (watching television or videos; or playing video or computer games) than did those who were

Exhibit 3-9. Significant Correlations Between Time Spent on Television or Homework and Student Outcomes in Year 4

	Correlation[c] with Time Spent on Homework at School or Home	Correlation[c] with Time Spent on T.V., Video, or Video Games
Lifetime exposure to drugs in Year 4[a]	-.18	.07
30-day exposure to drugs in Year 4[a]	-.17	.06
General attitudes towards drugs[b]	.22	-.07
Attitudes towards specific drugs[b]	.20	-.09
Perceived peer attitudes[b]	.11	-.08
Self esteem[b]	.12	-.08
Resistance to peer pressure[b]	.09	-.05
Perceived consequences of drug use[b]	.20	-.06

Interpretation: A negative correlation means that higher values on one variable are associated with *lower* values on the other variable, whereas a positive correlation means that higher values on one variable are associated with higher values on the other variable. The larger the number, the stronger the relationship, regardless of the sign. "Time spent on homework is negatively correlated with lifetime exposure to drugs (-.18) and positively correlated with general attitudes towards drugs (.22); that is, greater time spent on homework is associated with lower drug use and more desirable attitudes towards drugs."

[a] Higher values on this variable indicate more drug use.

[b] Higher values on this variable indicate more of the attributes desired by programs.

[c] All correlations significant at p<.0001

Source: Student Survey 1995; N=7221

Exhibit 3-10. Differences in Time Spent on Academic vs. Non-Academic Activities Among Groups with Different Drug Use Histories[a]: t-tests for Differences in Mean Activity Levels

	Mean	Std. Error	t-test
Time spent on homework, at home and school			
No current use	3.33	.02	
Current use	2.90	.02	14.03 (df=6947)[b]
No early use	3.24	.02	
Early use	2.98	.02	8.23 (df=6696)[b]
Time spent on T.V., videos, and video games			
No current use	3.36	.02	
Current use	3.50	.02	-4.68 (df=6733)[b]
No early use	3.32	.02	
Early use	3.56	.02	-7.80 (df=6539)[b]

Interpretation: "Students who were *not* currently using drugs reported spending significantly more time doing homework (mean=3.33) than those who were currently using drugs (mean=2.9)."

[a] No current use = used in lifetime but not currently; current use = currently using drugs or alcohol. No early use = no use in Year 1; early use = used drugs in Year 1.

[b] Statistically significant at p<.0001

Source: Student Survey 1992-95; N=7,221

currently using drugs. The same was true for those who delayed drug use or never used drugs, compared with those who had early experimentation with drugs.

How do students spend the rest of their time outside of school and how might this be associated with observed results for drug use, behaviors and attitudes? To examine these relationships we first present in ***Exhibit 3-11*** the distribution of students' time devoted to various extracurricular activities such as: going to movies, doing volunteer work in the community, engaging in sports, or socializing with friends. On a monthly or weekly basis the majority of 8th and 9th graders went to movies, shopped, read, or went to parties. Almost three-fourths of the students (70 percent) also said they liked to ride around in a car or motorcycle just for fun, at least once or twice a month or more often. The activities that students engaged in most commonly on a daily basis were sports or exercise (48 percent), and socializing ("hanging out") with friends (46 percent). Least frequent among the different activities was volunteer work in the community (55 percent said they never did this). Students also attended concerts only a few times a year, if at all, as might be expected.

The manner in which students chose to spend their time outside of school was associated with distinct patterns of drug use, attitudes, and perceptions of use, as shown in ***Exhibit 3-12***. The activities associated with the least desirable outcomes for students were: going to concerts, riding around in cars just for fun, "hanging out" with friends, and attending parties. As we presented in an earlier chapter, friends' houses, parties, outdoor places, and cars, were all

Exhibit 3-11. Percent of 8th and 9th Grade Students Spending Time on Extracurricular Activities (1995)

	Frequency				
Activity	Never	Few Times a Year	Once/Twice a Month	At Least Once a Week	Almost Every Day
Movies	3%	26%	50%	19%	2%
Concerts	42%	47%	7%	2%	1%
Car rides	17%	14%	20%	27%	23%
Volunteer work	55%	26%	11%	5%	2%
Sports/Exercise	12%	11%	10%	20%	48%
Hang out with friends	4%	5%	12%	33%	46%
Shop	11%	11%	36%	33%	8%
Read magazines	11%	10%	23%	34%	22%
Read newspapers	16%	13%	17%	27%	28%
Attend parties	7%	21%	39%	25%	8%

Interpretation: "Three percent of 8th and 9th-grade students reported that they never went to the movies."

Source: Student Survey 1995 (item F3); N=7,843

Exhibit 3-12. Correlations Between Time Spent on Extracurricular Activities and Student Outcomes in Year 4

Outcome in Year 4	Extracurricular Activities									
	Movies	Concerts	Car rides	Volunteer work	Sports or exercise	Hang out with friends	Shop	Read magazines	Read newspapers	Attend parties
Lifetime exposure to drugs[a]	.08	.21	.36	-.15	-.12	.26	-.01 (ns)	-.06	-.13	.31
30-day exposure to drugs[a]	.09	.26	.32	-.09	-.13	.21	-.00 (ns)	-.07	-.14	.33
General attitudes towards drugs[b]	-.09	-.21	-.29	.14	.13	-.22	.01 (ns)	.05	.16	-.30
Attitudes towards specific drugs[b]	-.09	-.22	-.27	.12	.15	-.19	.02 (ns)	.05	.16	-.29
Perceived peer attitudes[b]	-.04	-.08	-.16	.07	.07	-.11	-.06	.00 (ns)	.07	-.14
Self-esteem[b]	.00 (ns)	-.04	-.10	.07	.20	.03 (ns)	.03 (ns)	.05	.13	-.04
Resistance to peer pressure[b]	-.06	-.11	-.13	.03	.04	-.05	.00 (ns)	-.01 (ns)	.04 (ns)	-.12
Perceived consequences of drug use[b]	-.06	-.15	-.22	.15	.12	-.21	.01 (ns)	.03	.13	-.24

Interpretation: A negative correlation means that higher values on one variable are associated with ***lower*** values on the other variable, whereas a positive correlation means that higher values on one variable are associated with higher values on the other variable. The larger the number, the stronger the relationship, regardless of the sign. "Attendance at concerts is positively correlated with lifetime exposure to drugs (.21) and negatively correlated with general attitudes towards drugs (-.21); that is, students who attended concerts more often also reported more drug use and less desirable attitudes towards drugs."

[a] Higher values on this variable indicate more drug use.

[b] Higher values on this variable indicate more of the attributes desired by programs.

Note: ns=nonsignificant at the .01 level. All others significant at p<.01 or lower.

Source: Student Survey 1995; N=7221

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locations where students found they could use alcohol and other drugs without their parents or other adults finding out about it. On the other hand, volunteer work and sports or exercise were associated with lower drug use and more desirable attitudes towards drugs and perceptions of the consequences of drug use. Most notable among these positive correlations was that found between participation in sports or exercise and self-esteem; students who engaged in this activity regularly had higher self-esteem.

To summarize, we found that students' experiences with school were significantly associated with the students' involvement with alcohol and other drugs. Because of the strong relationship between students' drug use and their attitudes and beliefs towards drugs, we also found that these school experiences were highly associated with how students regarded drugs and alcohol as well.

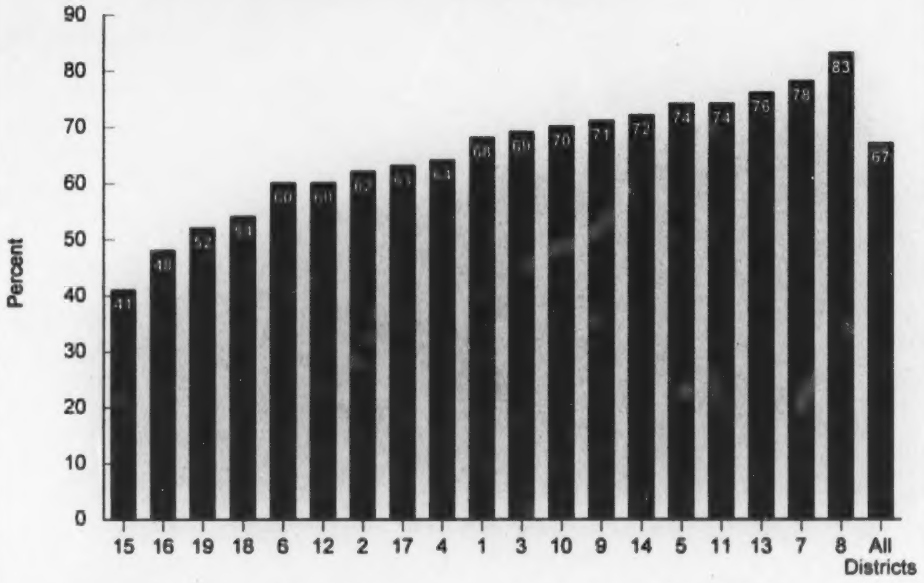
Home and Community Risk Indicators

In the previous section we described some of the student and school characteristics that appeared to be associated with increased risk for drug use, as well as with related attitudes, beliefs, and perceptions regarding drug use. In this section we examine some of the risk factors present in the students' homes and communities and relate these to students' results for drug use and behaviors. Among the factors we found to be most associated with increased risk for drug use and more tolerant attitudes and beliefs towards drugs are:

- non-rural school district
- lower educational level of both parents
- instability of household employment
- households where one or both parents are absent
- parents' decision to allow teenage students to sample alcohol on occasion.

Family and Home Characteristics. Approximately 67 percent of students lived in two-parent homes in 1995, as indicated in ***Exhibit 3-13***. This percentage varied a great deal across districts, from a low of 41 percent in district 15 (a large urban district with a high minority population and high poverty) to a high of 83 percent in district 8 (a small rural community that follows a religion explicitly opposed to the use of alcohol, tobacco, and other drugs). There was

Exhibit 3-13. Percent of 8th and 9th Grade Students in Each District Who Lived in Two-Parent Households, by District (1995)



Interpretation: "Forty-one percent of participating students in district 15 reported living with both a mother and a father, compared with 83 percent in district 8."

Source: Student Survey 1995 (item A3); N=7,843

a definite difference in this figure for communities with different population densities: among students attending school in urban districts, 59 percent said they lived with both a mother and a father, while 68 percent in suburban districts and 77 percent in rural districts said the same.

In 1995, only 11 percent of the students' mothers and 10 percent of the fathers had not completed high school, according to students. The employment status of both parents changed over the course of the study. In 1992, 77 percent of students reported that their mothers were working and the same number reported that their fathers were working. By 1995, the figures were 80 percent and 86 percent respectively, for mothers and fathers. For analyses described below, we created a composite employment variable that indicated whether or not at least one parent in the household was employed each year of the study.

Community Indicators. District variations in poverty levels are evident in ***Exhibit 3-14***. The proportion of students who were from households below the poverty line ranged from a low of 4 percent (districts 4, 5, 11, and 13) to a high of 30 percent in district 16. The level of poverty in a district appeared to be unrelated to population density or region of the country.

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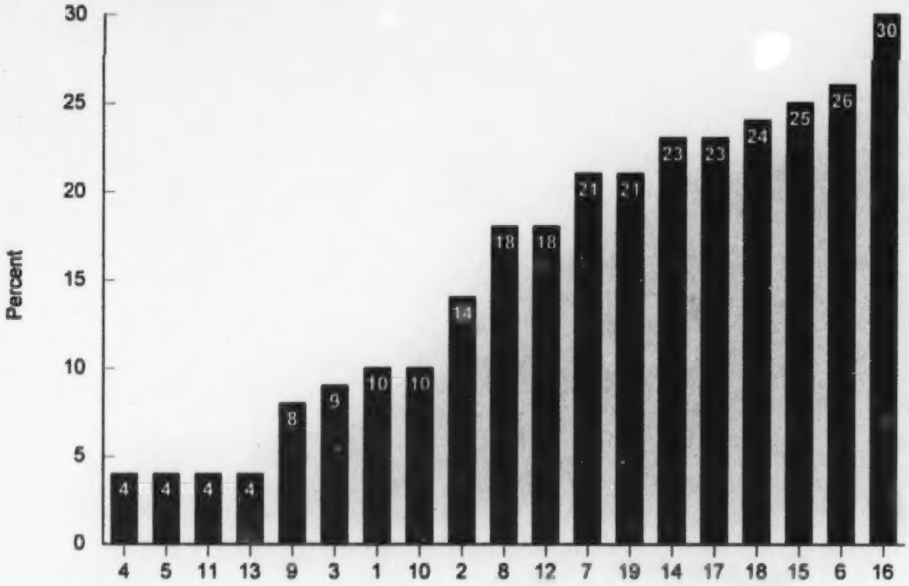
Exhibit 3-14. Percent of District Students in Households Below the Poverty Line, by District (1993)



Interpretation: "Four percent of all students attending school in district 4 lived in households below the poverty line."

Source: Individual district data for 19 districts (1993)

Finally, as we have noted elsewhere, there are discernable differences in what may be considered risk factors for increased drug use, among students attending school in rural, suburban or urban districts. In particular, there was a significantly higher incidence of violence against staff and students for urban and suburban districts when compared to rural districts, and more students in rural districts lived in two-parent homes compared to those in either suburban or urban districts. For these reasons we included population density as one of the community characteristics to study in relation to students' outcomes.

Associations with Student Drug Use and Attitudes. To determine to what extent these home and community characteristics might be associated with a higher risk for drug use, we completed a series of multiple regression analyses to predict student outcomes from these risk indicators. We were interested in the predictive power of the set of risk indicators as well as the predictive strength of each variable. Multiple regression allows one to control for the variance accounted for by other variables in the set in order to examine individual contributions more closely. The community predictors included two population density measures representing a contrast of urban vs. suburban districts and a contrast of rural vs. urban/suburban districts, and poverty level. Characteristics of family and home used as predictors included: the parents' educational level, the parents' employment stability over the four years, an indicator for two-parent households, and a binary variable to indicate if parents allowed their child to have small amounts of alcohol on occasion by the time the student was in the 5th and 6th grades, or not. ***Exhibit 3-15*** presents the results of each of these analyses performed separately for each dependent variable. Because of the large sample size, all model R^2 values were significant at $p<.0001$. For this reason we report only those models where the R^2 is 5 percent or higher; that is, where the amount of variance in the dependent variable accounted for by the predictors is at least 5 percent.

After controlling for all other factors in the model, district poverty did not significantly predict any of the outcome variables. The contrast between rural and urban/suburban districts contributed significantly to the models predicting general attitudes towards drugs and perceived consequences of the use of drugs. In both cases, students attending school in rural districts had significantly better outcomes than those attending school in more densely populated locations. The contrast between urban and suburban districts yielded one significant association, for the

Exhibit 3-15. Relationships Between Home and Community Characteristics and Student Drug Use and Attitudes: Model R^2 and Unstandardized Weights for Multiple Regression Analyses Using Home and Community Characteristics as Predictors

	Lifetime Drug Exposure[a] (R^2=.11)	30-day Drug Exposure[a] (R^2=.06)	General Attitudes[b] (R^2=.08)	Attitudes for Specific Drugs[b] (R^2=.06)	Perceived Consequences[b] (R^2=.07)
Independent Variables					
Community Factors					
Population density (1): Urban vs. Suburban	(ns)	(ns)	.27	(ns)	(ns)
Population density (2): Rural vs. Suburban/Urban	(ns)	(ns)	.63	(ns)	.62
Percent in Poverty	(ns)	(ns)	(ns)	(ns)	(ns)
Home Factors					
Parents' education	-.67	-.40	.67	.31	.41
Parents' employment status over time	(ns)	-.39	(ns)	.28	(ns)
Two-parent household	-1.20	-.58	1.37	.53	1.17
Parents allowed sips of alcohol	2.27	1.12	-2.41	-1.12	-2.52

Interpretation: The model R^2 for each regression analysis indicates the proportion of variance in the outcome variable that can be explained by the set of independent variables. The t-test associated with each independent variable tests that variable's unique contribution to the overall R^2.

[a] Higher values on this variable indicate more drug use.

[b] Higher values on this variable indicate more of the attributes desired by programs.

Note: ns=nonsignificant at the .01 level. All others significant at p<.01 or lower.

Source: Student Survey 1992-95, N=7,221; district data 1993

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model predicting general attitudes towards drugs. Students attending urban districts held more anti-drug attitudes than those in suburban districts, though the difference between the two in actual drug use was ***not*** significant.

The home and family characteristics were strong predictors of drug use and of related behaviors and attitudes. A higher household educational level and a two-parent home were significantly associated with lower drug use — both 30-day and lifetime — less tolerant attitudes towards drugs and stronger perceptions of the consequences of drug use. The parents' employment stability over the four years (i.e., whether at least one parent was employed each year) was predictive of the students' 30-day exposure to drugs in Year 4 and of their attitudes towards specific drugs. Students in households with greater employment stability had better outcomes for these two measures. On the other hand, the parents' decision, as early as Year 1, to allow their child sips of alcohol on special occasions was significantly associated with ***more*** involvement with drugs in general, and more tolerant views towards drugs. This variable was also highly associated with lowered perceptions of the consequences of drug use.

Study Findings:
Home and Community Risk Indicators

These results indicate that there were strong associations between home and community characteristics and the results for students' drug use, attitudes, and perceptions.

- In particular, the following factors appeared to be associated with students' increased risk for greater drug use or for their more tolerant attitudes and beliefs towards drugs:
  - non-rural school districts
  - lower educational levels of both parents
  - instability of household employment
  - households where one or both parents are absent
  - parents' decision to allow teenage students to sample alcohol on occasion.
- District poverty was ***not*** significantly associated with higher risk for drug use or pro-drug attitudes.

Chapter 4. Drug Prevention Programs and Their Effects on Student Outcomes

Nineteen districts participated in this longitudinal study, purposively selected as having one of the following two types of alcohol and other drug (AOD) prevention programs: (1) an extensive number of program components (e.g., drug prevention instruction in all grades, student assistance programs and/or student support groups, conflict resolution, and student leadership programs) or (2) a relatively small number of program components or components that focused on some, but not all, grades served by the district. We refer to the first programs as comprehensive and the second ones as comparison. The districts were located in all regions of the country and ranged from urban to rural, large (100,000 students) to small (2,200 students). Districts in the two program-type groups were matched on demographic characteristics.

These districts agreed to participate in the study and allowed RTI staff to sample fifth and sixth graders in spring 1992, survey those students then and for three succeeding years, visit schools and classrooms, and interview district and school staff. ***Exhibit 4-1*** presents selected characteristics of the 19 districts, including the racial/ethnic distribution of enrolled students, urbanicity, and the student enrollment for 1992. Within each district, we sampled approximately 250 fifth graders and 250 sixth graders from a small number of schools. Sampled students were asked to respond to surveys each spring from 1992 through 1995. During the succeeding years of the annual student surveys, most students moved from these schools into other district schools where we continued to survey them.[1] In addition to conducting surveys at all participating schools, we also gathered extensive program information at a subset of these schools, termed "key" schools. During the first year of the study, all study schools were key schools and in subsequent years they were defined as those with at least 25 study participants.

Each spring beginning with 1992, RTI staff members visited the 19 study districts to administer a student survey, the data collection tool for obtaining information on students'

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[1] If students moved out of a study district, we did not attempt to include them in the years in which they resided outside a study district.

Exhibit 4-1. Characteristics of Study Districts and Students

District #	Region of U.S.	Urbanicity	Number of Schools					District Enrollment	Student Ethnicity (%)	
			Elem	Jr/Mid	High	Alt	Total		White	Non-White
01	Southwest	Urban	44	11	5	3	63	70,000	81	19
02	Southwest	Urban	5	1	1	1	8	5,600	74	26
03	West	Suburban	11	2	2	1	16	14,000	77	23
04	West	Urban	85	17	14	3	119	86,000	88	22
05	Northeast	Suburban	10	2	2	1	15	8,000	81	19
06	South	Urban	18	4	5	2	29	25,000	61	39
07	West	Rural	7	1	1	1	10	4,500	72	28
08	West	Rural	6	2	1	0	9	4,600	75	25
09	N. Central	Rural	3	2	1	0	6	1,900	99	1
10	Midwest	Rural	5	1	1	0	7	2,900	92	8
11	Midwest	Rural	2	1	1	0	4	2,200	99	1
12	South	Urban	64	17	15	4	100	64,000	43	57
13	N. Central	Suburban	10	2	2	1	15	11,200	94	6
14	Southwest	Urban	20	5	3	1	29	21,000	39	61
15	North	Urban	36	5	7	3	51	37,000	25	75
16	North	Urban	45	17	15	1	78	47,000	42	58
17	South	Suburban	25	9	7	0	41	4,500	68	32
18	Southwest	Urban	19	6	2	2	29	15,000	28	72
19	N. Central	Urban	108	18	15	9	154	100,000	31	69

Interpretation: "District 1 is an urban district located in the southwest. A total of 70,000 students are enrolled in 63 schools. The student population is 81 percent white and 19 percent non-white."

Source: Individual district data, 1993

knowledge of, attitudes toward, and use of drugs. RTI staff were on site for 4 to 5 days in each district, with administration of the student survey taking most of that time and controlling much of the visit schedules. The initial study design included interviews with district administrators, prevention program staff, teachers, and parents during the spring visits. Because of the limited amount of time available during the survey visits to conduct these interviews or observe classroom instruction, student support groups, training sessions, or other student activities, ED asked RTI to make an additional visit to each district during fall 1993 to gather more in-depth program information. The focus of these visits was to examine the details of the prevention programs that could not be gleaned from extant information previously obtained from the districts.

The annual site visits primarily involved interviews with the districts' prevention program coordinators, key school staff (e.g., principals, counselors, teachers), parents, advisory

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council members, students, Drug Abuse Resistance Education (D.A.R.E.)[2] officers, and community members. Site visitors also reviewed program materials and observed various prevention activities such as classroom instruction, student support groups, assemblies, and special events.

Delivery of the Prevention Programs

In the first section of this chapter we provide an analysis of the content, focus, and level of implementation of the prevention programs, independent of any impact the programs may have had on student drug use and behaviors. This section represents a summary of our longer report, "Local Education Agency Cross-Site Analysis." In later sections of this chapter, we link the programs to the longitudinal results obtained for student data and examine the program impacts. We believe that an examination of the structure and content of these prevention programs is essential for understanding the context and uniqueness of each program.

We begin this section with a discussion of our findings on variations and inconsistencies in program delivery. We then evaluate the programs along dimensions of: (1) program rationale and degree of stability, (2) program content, (3) program intensity, and (4) parental and community involvement and support. These factors represent the program features that best differentiate between programs that are well implemented and established, and those that are not. We conclude with an evaluation of the factors that appear to facilitate program implementation as well as those that seem to act as barriers for implementation.

Study Findings:
Delivery of the Prevention Programs

- Overall, districts in which the prevention program coordinators were assigned full-time had comprehensive programs that offered prevention instruction in all grades as well as student support groups. In addition, these programs provided more training for prevention staff.
- The two student-focused components that defined the prevention programs in most districts were instruction, typically delivered by classroom teachers and, in the case of D.A.R.E., by police officers, and student support activities, typically delivered by counselors or teachers.

— *Continued on next page*

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[2] The D.A.R.E. program typically consists of classroom lessons for fifth and/or sixth graders presented by specially trained law enforcement officers.

Study Findings:
Delivery of the Prevention Programs

- ★ Nearly all districts used prevention-specific curricula in their programs and most utilized a variety of curricula from several sources as appropriate for different grade levels.
- ★ At all grade levels, teachers varied greatly in the amount of time they devoted to prevention instruction, even though some districts had a specific number of hours mandated or suggested by their state or district. This resulted in uneven delivery of prevention information across schools or even classrooms and made it very difficult to estimate for a district the average number of hours of instruction delivered in the classroom.
- ★ In most schools, student support services rely primarily on counselors but, with the high student-to-counselor ratios, particularly at the junior and senior high school levels, the extent of support is limited to crisis management.
- ★ The most common type of community involvement was the use of police officers in the classroom to deliver the D.A.R.E. program. Many districts also involved nonprofit organizations or human service agencies to provide student counseling; community councils or advisory boards to assist with overall program planning; and local businesses to provide financial and in-kind contributions.

Variations and Inconsistencies in Program Delivery

The strongest theme that emerged from our examination of drug prevention programs in the districts and schools was tremendous variability. We found at least as much variability ***within*** districts as between them — at the school level, at the classroom level, and at the student level. This variability showed up in the amount of classroom instruction related to prevention, the specific content of classroom instruction, the methods used for presentation of materials, the availability of support services for students, and the frequency and type of special prevention-related events.

At all grade levels, teachers varied greatly in the amount of time they devoted to prevention instruction. Even where district administrators mandated or strongly recommended a specific number of hours for prevention instruction per grade per year, teachers devoted inconsistent amounts of time to this subject matter. For example, health teachers for students at the same grade level in one school cited instructional time per class per year that ranged from 12 to 26 hours. Teachers in a given school did not always use a common set of prevention curriculum materials; but even when they did, they presented or omitted different sections or activities.

Some specific schools provided exceptions to the rule of variability, and teachers in those schools followed nearly identical lesson plans and apparently devoted very similar amounts of class time to drug prevention. In each of these schools, an identified leader (the equivalent of a building-level prevention program coordinator) provided training, encouragement, and feedback to the teachers.

Inconsistent delivery of prevention information may be due in large part to the heavy reliance on classroom teachers in subjects other than health to implement these activities. Many teachers told us they had not received sufficient training; others were not comfortable with some of the subject matter or with the interactive teaching methods recommended in the curriculum guides. Still others saw drug prevention as "just one more thing to add to an already full school day." This was especially true at the high school level, where several prevention program staff from various districts doubted that teachers were regularly integrating prevention instruction into academic courses even though the teachers had agreed to do so. For their part, teachers reported that they received differing and conflicting messages about the priority of prevention instruction and so used considerable discretion in how much and when to teach classroom components of the program.

Although many schools intended to provide nonclassroom-based prevention activities designed for high-risk students (activities that we have called student support services in this study), the availability of this kind of support was often very limited. In most schools, these services rely primarily on counselors and some teachers; most elementary schools did not have full-time counselors and some had no counselors at all. At the junior and senior high school levels, several counselors reported that, with student-to-counselor ratios approaching 500 to 1, they had time for crisis management only. Elementary, middle, and high schools in one of our districts, however, did provide ongoing support groups for high-risk students. The groups were led by teachers who were not only trained by the district prevention program coordinator, but also received stipends in addition to their regular salaries and/or were released from responsibility for part of their regular class load.

We note that current experts in the field of drug prevention say that inconsistent or incomplete delivery of the prevention curriculum is one of the main reasons why even those approaches that have proven effective under test conditions may not show positive results when implemented elsewhere.[3]

Program Rationale and Degree of Stability

Among the 19 districts we saw wide variation in the extent to which the prevention programs demonstrated stability, organization, and a well-articulated approach. Factors that may affect a program's "stability" are: (1) the length of time that the program has been in existence (presumably, the longer the time, the greater the amount of planning and shaping the program has been given), (2) the existence of a program rationale that shapes the focus of the program at the district level, and (3) the amount of time devoted by the prevention program coordinator to directing the program.

Program Initiation. Initiation of prevention programs in 16 of the 19 study districts was the direct result of federal funding provided by the DFSCA legislation. Only three of the participating districts had implemented prevention programs prior to 1987. District 12[4], in response to a 1979 state mandate requiring all school districts to develop a drug prevention program, began a program that was entirely funded through local donations until the advent of DFSCA. This district's program is the longest established of all 19 study districts, followed closely by District 13. District 13 started a prevention program in 1980 in anticipation of state legislation (subsequently passed in 1982) that would require districts to have instructional programs on prevention, chemical abuse, and dependency. District 4 initiated a community-based program to prevent unhealthy lifestyles by forming a county prevention task force in 1982, which later also served as the DFSCA advisory council. While not the longest established program, only the District 4 program predated both the availability of federal funds and a state mandate.

Program Rationale. Whereas all 19 study districts had developed written prevention policies as required by DFSCA,[5] only seven districts (1, 4, 8, 9, 12, 14, 16) had clear, overriding approaches to guide the implementation of their drug prevention efforts. These approaches, developed by district administrators or the prevention program coordinators, were the bases by which local program staff identified strategies, organizational structures, and specific components that constitute their prevention programs. As we illustrate below, having a specific, articulated approach to the program does not signify that the program is comprehensive in nature, only that whatever program exists — whether comprehensive or not — is based on an explicit rationale.

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[3] Rohrbach, L.A., D'Onofrio, C.N., Backer, T.E., & Montgomery, S.B. (1996). Diffusion of school-based substance abuse prevention programs. *American Behavioral Scientist*, 39 (7), 919-934.

[4] Because we want to focus on the characteristics of the districts and their prevention programs rather than their names and locations, and to protect the confidentiality of the responses, we use numbers in referring to the districts in the body of this report.

[5] The policies typically forbid the use, possession, sale, or distribution of alcohol and other drugs by students and staff and also outline the consequences for policy violation.

The prevention program administrators in three of these districts (4, 9, 12) with clearly-defined approaches believed that the communities as well as the schools must be involved in prevention for it to be effective. Moreover, these administrators thought that all children were at risk for alcohol and other drug (AOD) abuse and that all citizens needed to become educated about AOD problems in order to significantly reduce the potential for abuse. The prevention program in District 9 best exemplified this approach; a school/community organization directed the AOD prevention activities for the school system and the broader community. The organization also served as the DFSCA advisory council, with eight subcommittees, five of which oversaw key components of the school prevention program. The remaining three subcommittees targeted parents, senior citizens, and school and business employees. Additionally, parent involvement in prevention activities was an important factor. Specific program components were designed to maximize student opportunities to serve as, and to bond with, positive role models.

Not all community-based programs are predicated on the belief that community involvement would benefit everyone. For example, although the District 16 program used community resources to deliver prevention services, this approach was based on the program coordinator's belief that it was the most expedient method of providing services in a large urban area, rather than representing an expressed need to involve the entire community in prevention efforts. District and school personnel had limited involvement in the delivery of prevention activities.

Three other districts had very distinct approaches to drug prevention. In District 1, the prevention program coordinator believed that prevention of drug use was best achieved by addressing related problems such as academic failure and low self-esteem; the district's program therefore focused on youth who were at risk for those problems. The approach of the District 14 coordinator was to develop prevention program components based on research identifying (1) the underlying risk factors for problems such as AOD abuse, pregnancy, delinquency, and dropping out; and (2) the protective factors (e.g., caring and support, high expectations, youth participation and involvement) that facilitate the development of youth who do not get involved in life-compromising problems. The District 14 program was characterized by support groups for students, teachers, and other staff. Additionally, staff training addressed educators' dysfunctional/distressed life circumstances to keep them from perpetuating dysfunctionality in classroom environments.[6] Finally, in District 8, school administrators believed that a minimal prevention program (i.e., primarily participation in Red Ribbon Week[7] activities) was adequate to address the needs of the community and its youth. In these seven districts, then, the specific components of the prevention programs reflected the overall purposes articulated in their approaches.

In the 12 districts with less-focused approaches to prevention program development, the individual program components they selected seemed to result from pragmatic concerns such as money and time, rather than from adherence to a well-articulated strategy for prevention programming. For example, in many districts, Lions Club or Elks Club members offered to pay for the *Quest* curriculum materials and training. Without the financial backing of these community organizations, it is doubtful this curriculum would be offered.[8]

Similarly, in many of these districts — and during the period of this study — the local law enforcement agency funded the Drug Abuse Resistance Education (D.A.R.E.) program,[9] which may help explain the popularity of this program in the study districts; 16 of the 19 study districts used D.A.R.E. Other pragmatic reasons for use of specific curricula included ease of implementation or mandates by districts or states. Finally, some particular programs or activities were implemented because active individuals (parents, teachers, community members) were willing to invest the time to initiate them.

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[6] The portion of this prevention program that provided assistance for school employees was supported by non-DFSCA funds.

[7] Red Ribbon Week is typically a week during which AOD use prevention is promoted through schoolwide assemblies in which students take a pledge to abstain from AOD use.

[8] As we understand it, the *Quest* curriculum is not available for purchase without formal introductory training provided by Lions-Quest International. Follow-up training sessions are offered; both types of training are viewed by districts as relatively expensive compared with most training they provide themselves.

[9] We found that, during the period of this study, this situation was changing and districts were beginning to pay more of the costs for D.A.R.E. than they had in the past.

Time Devoted to Directing the Program. Prevention program coordinators (PPCs) can greatly influence the tone of a district's program if they have a well-articulated approach guiding the configuration of components that constitute the program. Two other major influences on the structure and operation of a prevention program are stability of tenure of PPCs and the priority the program receives within the district. Most of our study districts enjoyed the tenure of the same program coordinator throughout our research efforts; only Districts 8, 17, and 19 had a change in personnel in this position.

One dimension of the priority afforded to drug prevention efforts in the districts we studied was the relative amount of time available to the coordinators to perform prevention-related responsibilities, that is, the percentage of time district coordinators were assigned to AOD prevention activities (rather than other district responsibilities). About one-third of the districts had full-time prevention coordinators, another third had PPCs assigned from 45 to 75 percent time, and the rest had coordinators who spent 25 percent or less of their time on these responsibilities. While this percentage is related to district size (which determines to a large extent the level of DFSCA funding), there are some exceptions. For example, the prevention program coordinator for one of the largest districts in the study was assigned this responsibility only 15 percent of the time; one of the smallest districts provided 60 percent time to its coordinator.

There appears to be a relationship between the amount of time prevention program coordinators devoted to directing their programs and the overall level of program implementation. Most of the districts in which the PPCs were assigned full-time had comprehensive programs that offered prevention instruction in all grades, provided training for prevention staff, and offered a number of student support groups.

Program Content, Program Implementors, and Staff Training

Program Content

The DFSCA afforded local school districts considerable flexibility in deciding how best to pursue the goal of drug prevention, and that discretion was reflected in the diversity we found across districts with respect to the content of their drug prevention programs. The DFSCA identified 15 specific types of activities that federal funding could support. Most of these activities were broadly focused to reach all students and included such activities as outreach, student instruction, guidance and counseling, family education, and referral for treatment. Special programs, such as model alternative schools for youth with drug problems and programs targeting student athletes, were also specifically identified by the enabling legislation as appropriate uses of federal funds. Finally, the legislation permitted school districts to implement "other programs of drug and alcohol abuse education and prevention, consistent with the purposes" of the Act (section 5125(a)).

Funding available for implementing the drug prevention programs varied to some extent, as shown in ***Exhibit 4-2***. DFSCA funding for the nation averaged $6 to $10 per pupil during this time period and this is reflected in the DFSCA funding shown for the 19 districts in the study. A few districts were able to complement these dollars with local or county funds, and in one case, through a property tax. Even so, total funding was typically no greater than $10 per student, including all sources of funding.

Exhibit 4-2. Drug Prevention Funding Per Student for 1994-95

District Number	DFSCA Funds Reported by District	Other Sources	Total
1	$5	$0	$5
2	$6	$0	$6
3	$5	$4	$9
4	$5	$0	$5
5	$6	$4	$10
6	$6	$0	$6
7	$6	$0	$6
8	$7	$0	$7
9	$10	$33	$43
10	$5	$7	$12
11	$5	$0	$5
12	$7	$13	$20
13	$6	$4	$10
14	$6	$3	$9
15	$7	$0	$7
16	$12	$0	$12
17	$8	$0	$8
18	$12	$0	$12
19	$16	$2	$18

Interpretation: "During school year 1994-95, district 1 received $5 per student in prevention funds from DFSCA and none from other sources."

Source: Individual district data, 1994

To facilitate our examination of the programs implemented by the districts we studied, we categorized all **student-focused** activities into one of three broad areas, or program components:[10]

1. **Student Instruction**, which represents the use of drug abuse education and prevention curricula, academic textbooks, and other instructional materials;
2. **Student Support**, which includes peer mediation, counseling, and student assistance programs; and
3. **Special Events**, or events that occur on an infrequent basis, such as assemblies or Red Ribbon Week.

We then identified which of these components *were considered by district staff to be essential, or key*, to the achievement of each district's prevention purposes (see ***Exhibit 4-3***). Some

Exhibit 4-3. Components of Prevention Programs[a] Identified as Key by District Staff

District Code	Student Instruction	Student Support	Special Events	Staff Training	Community Involvement
1	X	X			
2	X				
3		X	X		
4	X	X		X	X
5	X	X			
6	X				X
7			X		
8			X		
9	X	X			X
10	X				
11	X				
12	X	X	X		X
13	X	X	X		
14		X		X	
15	X			X	
16	X				X
17	X		X		X
18	X				X
19	X	X		X	

Interpretation: "District staff at school district 1 considered student instruction and student support as key components of their drug prevention program."

[a] As indicated in the table, most districts had more than one key prevention program component.

Source: Program data 1992-95

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[10] Staff training and community involvement, two other broad categories we used to classify DFSCA-supported activities, are discussed in subsequent sections of the report.

districts considered one or two of these components essential or key to their programmatic efforts; only Districts 12 and 13 identified all three areas as key components. A similar list of ***all*** components offered by the districts (without regard to the extent of these services) would make the prevention programs appear the same because all districts provided student instruction, all districts had some type of student support service, and all held special events. The difference we are focusing on in this section is the importance that prevention programs give to the different components. In a later section, we discuss the differences among districts in the intensity with which each of these services is delivered or the extensiveness of the service.

Student Instruction. All 19 districts in our study made use of some type of drug abuse education and prevention curriculum, although for some districts (Districts 3, 7, 8, and 14), curricula were a secondary rather than key component of the prevention program. Instruction most often targeted the general population of students in each district; however, some districts offered separate instructional programs for specific groups of students, such as those who had violated a district's drug policy, potential dropouts, or students identified by staff as being most at risk for AOD use. Students in all districts received some type of prevention instruction.

Districts relied on two sources of instructional materials for prevention education: (1) academic textbooks (e.g., health, home economics, physical education, science, social studies), which typically contained a chapter or unit within a chapter related to AOD use; or (2) specifically focused prevention curricula. Some districts relied solely or heavily upon academic textbook information as a source for prevention education. Many districts' prevention program coordinators cited the use of academic textbooks by classroom teachers for drug prevention education as a way to infuse prevention instruction into other subjects, predominately health. We observed that while reliance on academic textbooks was clearly an expedient way for a district to offer prevention instruction to students, a few of the textbooks we reviewed were nearly 10 years old. Teachers stated that prevention material in the older texts was dated and did not adequately address students' current concerns. Furthermore, as we discuss in the staffing section, use of any instructional material varied greatly from teacher to teacher.

Virtually all of the districts used some form of prevention-specific curricula in their programs. More than half of these 62 different curricula were commercially developed (39), while others were developed by school districts or other local entities (19), or by states (4). Districts used a variety of curricula from several sources as appropriate for different grade levels. The three most widely used prevention-specific curricula were D.A.R.E., *Quest*, and

Here's Looking at You, 2000. D.A.R.E. was taught by local law enforcement officers in 16 districts.[11] Some of these districts relied heavily upon D.A.R.E. as a primary vehicle for student instruction especially in grade 5. *Quest* was available in 11 districts and used in various grades from kindergarten through grade 8. Eight districts used *Here's Looking at You, 2000*, mostly in elementary schools, but Districts 5 and 19 made the curricula available to teachers in grades K-12.

Student Support. After classroom instruction, student support activities ranked highest in frequency of use as a key component in nine study districts. In most of these districts, these support activities included peer assistance programs, student leadership programs, student assistance teams, and counselor-led groups. As with student instruction, all 19 districts offered some form of student support. Minimally this translated to having school counselors available to talk with students about any topic, including AOD issues, as staffing and resources permitted.

Among all study districts, peer conflict mediation and peer helping programs were the most common student support activity (present in 17 districts; only Districts 6 and 8 lacked peer programs). Students selected to serve as peer mediators generally received initial and periodic training from the program sponsor or staff from the district prevention office. Peer mediators usually served for about a year. Students wishing to seek help from a peer mediator or peer helper could do so during specified times (e.g., lunch hour). Peer mediators were trained to refer students with problems the mediators could not handle to a counselor or another staff person. Some schools introduced the trained peer helpers in an assembly, through posters or flyers, or over the public address system.

Peer leadership programs were another form of student support implemented in five study districts (Districts 4, 9, 10, 12, 17). Such programs provided selected students with opportunities to serve as positive role models for other students; they often conducted schoolwide events with AOD prevention messages. Program participation was usually open to all students; sponsors often encouraged highly at-risk students to apply as a strategy for developing leadership skills in such students. Other districts had similar programs in which older students (junior/senior high school or upper elementary) conducted activities with younger students (elementary or lower elementary) related to drug use prevention. Participating younger students often were referred to the program by their teachers or counselors. A few districts operated such programs after school hours.

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[11] For over 20 years, community relations police officers have delivered a drug prevention and personal safety curriculum in District 5's schools that is similar to D.A.R.E. They annually spend three weeks in each of the district's schools presenting four hours of instruction to 5th graders and two hours of instruction for all other grades. In addition to AOD instruction, the program covers topics related to personal safety, including physical and sexual abuse. For purposes of this study we have included District 5 among the 16 districts that offer D.A.R.E. as part of their prevention program.

Modeled after employee assistance programs, student assistance teams in 15 study districts identified and assisted students with AOD-related or other problems. Typically any building-level staff member could volunteer to serve on a team; usually teachers, counselors, school psychologists, and administrators served on these teams. Procedures for self-referral or referral by teachers, other staff or parents were established by the district. After gathering information about a referred (or self-referred) student, team members met to review the collected information and to make a recommendation regarding assistance for the student. Assistance often included a conference with a teacher or staff member, a parent conference with members of the team, enrollment in a district prevention program activity such as a support group, or a referral for professional diagnosis or evaluation. Follow-up reviews were also conducted.

As another way of providing student support, counselors often conducted small-group sessions on various AOD-related topics. Participating students typically met with the counselor once a week during a specified class hour, and sessions lasted throughout a semester or longer. Elementary students identified for participation, typically through a student assistance program referral, usually were required to obtain parental/guardian permission to participate. A similar process worked at middle and junior high schools, although the older students were more likely than younger students to refer themselves to the group.

Districts 1 and 14 designed special support groups for students who violated the districts' drug policies. Violators were required to participate in these semester-long programs led by a specially trained counselor or prevention office staff member.

An overwhelming majority of the district programs' staff we interviewed believed that student support programs were beneficial to students for effecting long-term outcomes and perhaps provided a better means of preventing, and/or intervening in, AOD use than did student instruction. Advocates of student support groups stated that these groups helped students learn to make their own decisions and provided secure environments in which students could talk about their feelings, families, and problems. Student demand for participation in such programs was rapidly growing, and districts often could not keep pace in providing services because they lacked the necessary funding and staff. Most staff who participated in student support programs reported being overwhelmed by the problems students faced and by the amount of assistance students required to resolve the problems underlying drug use.

While some support groups were open to all students who believed they would benefit from participation in such a program, most student support programs were aimed at specific groups of students — those identified by school staff as being most at risk for AOD use. Two districts exemplified opposite ends of the continuum of attitudes about student support: (1) District 14, whose prevention program was based on a belief that student support is the best means of providing prevention education and early intervention for all students; and (2) District 17, which did not promote support groups, such as Children of Alcoholics, because parents might object. This district also did not establish student assistance teams.

The DFSCA supports such activities as identification of students with AOD problems and subsequent referral for treatment services. We found that such referral services were available in nine of our study districts.

Special Events. The third basic type of prevention program for students was special events. Virtually all districts offered some form of special event as part of their overall programs, but of the three student-oriented components (instruction, support, events), special events were less often identified by program staff as central or key to their overall program. Special events were a key component in just 6 of the 19 districts (see ***Exhibit 4-3***).

The most common form of special event that districts undertook was participation in Red Ribbon Week, a week in which AOD prevention is promoted through schoolwide assemblies in which students take a pledge to abstain from AOD use. Students and staff wear red ribbons to heighten awareness and promote prevention. In two of our districts (Districts 7 and 8), Red Ribbon Week activities were ***the*** key component of the prevention programs. In three other districts (3, 13, 17), Red Ribbon Week was a major focus and a primary source of community and parent involvement. On the other hand, two districts (4, 19) in our study did not observe Red Ribbon Week.

Other special drug-free events for students included assemblies with prevention-related themes; health fairs; and special-occasion drug-free parties such as those following graduations and proms. Special drug-free events typically were open to all students. In the case of special assemblies, high school students often made presentations to students in an elementary, middle, or junior high school. If a speaker from the community made a presentation, all students in a school typically attended. Some districts targeted specific groups of students for participation in special events or programs, although attendance generally was open to all students. For example, at one elementary school in District 4, a teacher designed a tennis program for fifth- and sixth-grade students who were academically or behaviorally at risk. The program gave at-risk students a healthy alternative and encouraged social interaction with students not considered at risk. To remain eligible, participating students had to set academic or behavioral goals upon entering the program, to meet weekly with the program sponsor to review progress toward their goals, and to maintain a "C" average. Tennis games were played after school 5 days a week for about an hour.

Program Implementors

The primary implementors of school-level prevention programs in our participating districts fell into three categories: teachers, student support staff (counselors, student assistance program team members[12]), and D.A.R.E. officers. As mentioned, the two student-focused components that defined the prevention programs in most study districts included instruction, which typically was delivered by classroom teachers, and student support activities, typically delivered by counselors or teachers. D.A.R.E. officers were considered primary implementors of instruction in several districts that relied heavily on the D.A.R.E. program to provide prevention education to students.

Overwhelmingly, classroom teachers of all grade levels were responsible for providing prevention instruction either through the use of a prevention-specific curriculum or academic textbooks. In five districts, health teachers delivered this instruction; in the remainder, other teachers delivered it, mostly general education elementary school teachers. Heavy reliance on classroom teachers to implement prevention instruction seems to have resulted in inconsistent delivery of prevention information because teachers saw it as "just one more thing to add to an already full school day." This was especially true at the high school level where several prevention program staff from various districts doubted that teachers were regularly integrating prevention instruction into academic courses, unless the courses were health or physical education. Even then, the "integration" typically equated to teaching the AOD prevention unit or chapter within an academic textbook. At all grade levels, teachers varied greatly in the amount of time they devoted to prevention instruction.

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[12] Student assistance team members typically included a building-level administrator, teachers, a counselor, a school psychologist, and/or a nurse.

Most districts (15) relied on counselors, student assistance program team members, or staff from community agencies as primary providers of prevention-related student support. Reliance on counselors may have limited the availability of support in some schools, however. Most elementary schools did not have full-time counselors, and some had no site-based counselors on even a part-time basis. Thus, only limited prevention-related student support was occurring given the number of schools each counselor had to serve. At the junior and senior high school levels, several counselors reported that their students faced complex problems such as child abuse, teen pregnancy, divorced and single-parent families, and AOD use. These challenges, combined with student-to-counselor ratios approaching 500:1, impeded counselors' efforts to focus on prevention; they found they had time for crisis management only.

The problems faced by counselors and teachers in most schools were alleviated somewhat in a few districts through stipends or release time offered to school staff who assumed responsibility for prevention program coordination at the building level. For example, in District 14, the key program component was the "CARE team" — support groups conducted by trained school staff; each school's volunteer CARE team coordinator received a stipend for coordinating prevention activities at his/her school. Moreover, teachers who had been trained to conduct support groups received release time from their normal duties to lead the groups, and they received stipends based on the number of support groups they conducted.

District 12 avoided the problems faced by program staff in most schools through the additional funding they received from county taxes (discussed more fully in the community involvement section of this report). Using these funds, the district prevention office employed 19 full-time school drug advisors to implement prevention program components in the district's schools. All drug advisors were responsible for three to nine schools, and they were heavily involved in providing training, support, and leadership to students, staff, parents, and community groups. Drug advisors also coordinated the teaching of prevention curricula with school staff. The strength of the prevention programs in Districts 12 and 14 resulted, in part, from the efforts of the school drug advisors and CARE team coordinators in these districts, which came about because of local resources that supported their functions.

Many districts had a variety of other school-based implementors for secondary prevention program components; these included D.A.R.E. and other law enforcement officers, parents, paraprofessionals, community organization staff, part-time school coordinators, and advisory council members. For example, in District 18, each school had a full-time caseworker provided through the district's dropout prevention program, aimed at decreasing the dropout rate by increasing each student's chances of succeeding in school.[13] In a later section we provide a discussion of community involvement in district and school prevention programs, including service delivery functions.

Clearly, teachers and counselors were responsible for the vast majority of prevention education — other than that provided through D.A.R.E. — occurring in the study districts, and these responsibilities were generally ***in addition to*** their regular workloads. Especially in the case of teachers, unless they viewed prevention instruction as a priority, delivery could be sporadic because prevention education was "just one more thing to do." Few districts offered stipends or release time to support educational personnel for time spent coordinating prevention program components. Only District 12, through the community's financial support of the prevention program, could afford to hire full-time school drug advisors in addition to the PPC to oversee the prevention activities in all schools.[14] Hence, prevention education often depended on the commitment of each individual staff member and on a personal belief in the importance of providing such instruction on a regular basis.

Staff Training

All 19 districts we studied conducted prevention-related staff[15] training, but only 4 of the 19 districts viewed staff training as a key component of their prevention efforts. In two of these districts, staff training addressed student support activities, including conflict mediation, refusal skills (open to parents as well as staff), and improvisational theater for staff and students. One of these also provided curriculum-related training, focusing on key components of the district's prevention program: preparing staff to serve as members of school-based student assistance teams and to facilitate student support groups. Staff in both of these districts could progress through different levels of training (e.g., introductory, advanced), and training sessions in these districts tended to be intensive (several full days) and offered on a regular basis.

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[13] This dropout prevention program was funded through an interagency agreement at the state level between the employment commission and the education agency.

[14] The impact of this staff support on the program's outcomes could not be determined through this study but appeared not to have been sufficient to alter the large increases in drug use observed over the four years.

[15] "Staff" included district prevention program personnel, district administrators, principals, teachers, counselors, and other certified staff. We discuss training sessions for parents and community members in a later section.

The other two districts for which staff training was a key component focused on making staff aware of key issues in AOD prevention, instructing teachers and staff in infusion of prevention education into academic subjects, and/or delivery of a prevention-specific curriculum.

Staff training available in the other 15 districts typically focused on these three areas: prevention-specific curriculum, general AOD information, and student support. Most districts offered training for ***prevention-specific curricula*** selected by the district (e.g., *Quest* and *Here's Looking at You, 2000*). Training sessions for these curricula usually were conducted by program developers, district staff who had been trained by developers, or state education agency staff.

Study districts offered prevention-specific curriculum training either annually or one time only. In the case of the latter, when new teachers or veteran teachers not previously trained in a curriculum became interested in using a program for which training was no longer provided, they relied on their colleagues for assistance and spent time familiarizing themselves with the materials. Most curricular training was completed by teachers of kindergarten through grade 8.

In addition to curriculum training, most districts offered training sessions to personnel at large on ***AOD-related topics*** that ranged from drug awareness and intervention to gang and violence prevention. These sessions usually were conducted annually by district staff, a local community organization, or a DFSCA Regional Center. With the advent of the SDFSCA legislation's inclusion of violence prevention, 8 districts offered training sessions to various types of staff between 1993 and 1995 that addressed violence and/or gangs.

Twelve districts provided staff training opportunities in the area of ***student support*** activities, and most of this training was ongoing rather than a one-time occurrence, usually conducted by district prevention staff.

Program Intensity

As noted above, instruction in AOD prevention, typically delivered to the general student population, was a key program component in most study districts; and student support activities, typically targeted to at-risk youth, constituted an essential program component in nearly half of the districts. Special events, typically available for all students, were integral to the overall prevention efforts in six districts. Three other categories of student-focused activities authorized by the legislation were rarely, if ever, the defining characteristics of any of the prevention programs: special prevention programs for athletes (two districts), dropout prevention programs (one district); and model alternative schools for youth with drug problems (no districts).

Student Instruction

Students in all study districts received prevention-related instruction primarily from classroom teachers who used an academic textbook or a prevention-specific curriculum (or both).

In spring 1993, we surveyed classroom teachers in the study districts about the estimated total hours of AOD instruction they provided to their students in a typical year. The range of teacher-reported instruction using prevention-specific curricula was as follows:

- one 45 minute lesson/semester
- 3-4 hours/year
- 15 lessons/semester
- 1 hour/day for 2 weeks, 3 weeks, or a semester
- 3 times/week for 9 weeks
- 18 hours/year
- 50 minutes/day for 3 weeks
- 35 hours/year
- 6 units, 15 minutes/day
- 1 hour/week for 8 or 17 weeks
- alternate days/semester or school year
- 35 minutes/day for 10 days

The same level of variation in instruction time was present when academic textbooks were the source of prevention-related instruction. Health teachers most often provided the instruction, followed by physical education teachers, and science teachers. Other academic classes where prevention was taught included home economics, social studies, English, driver's education, and speech/drama.

Prevention program staff from at least one district were doubtful that high school teachers were integrating prevention instruction into academic courses as planned; however they were confident that AOD prevention education was being delivered in grade 9 health and the elective substance abuse course. The program coordinator in a district where the state encouraged specific annual hours of prevention instruction by grade level told us the recommended hours were followed closely at the elementary level but were less rigorously adhered to as the grade levels increased.[16]

There was overwhelming variability ***within schools*** (as well as between districts and between schools in a district) in the reporting districts in the number of hours of instruction. This was true even in districts where states/districts mandated or suggested hours for prevention instruction.[17] For example, health teachers in the same school cited a range in instructional hours from 12 to 26; in other schools the difference in reported hours was far greater. Across districts, teachers stated delivering between 1 and 100 hours annually of AOD prevention instruction. Two, ten, and thirty hours of annual instruction were most often cited. Hence, it is very difficult to estimate for a district an average number of hours of prevention instruction delivered by classroom teachers. Only for the D.A.R.E. program can we be fairly certain that students received the program's prescribed 17 hours of instruction, delivered by law enforcement officers.

Student Support

Peer helping programs, including peer leadership and peer conflict mediation, were the most common student support activity among study districts. The intensity of such programs varied from weekly 30 minute sessions for 3 weeks to hourly sessions conducted weekly for either a semester or throughout the school year. Peer helping programs typically were conducted for a class period on a weekly basis for a semester. Students who served as peer helpers often received a few hours of initial training from the program sponsor (e.g., a teacher or counselor) and participated in ongoing training throughout the semester or school year.

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[16] The state encourages 10 hours annually of prevention instruction for students in grades kindergarten through third; 14 hours for grade 4; 18 hours for grades 5-6; 15 hours for grades 7-8; 24 classes (delivered in physical education) for grades 9, 11, 12; and 54 classes (in health) for grade 10.

[17] Across reporting districts, only three schools (from different districts) had little (2 hours) or no variation in reported instructional hours by classroom teachers. However, teachers in other schools in two of these districts varied in their responses for instructional hours.

Student support groups varied much more in intensity than did the peer programs. The following lists the different time spans most commonly found among the 15 districts that provided support groups:

- 4 hours/week for 8 weeks
- 20-30 minutes/week for 8 weeks or a semester
- 1 hour /week for 6 weeks, 8 weeks, 12 weeks, or a semester
- 45 minutes/week for 10 weeks

Special Events

The program coordinators in six districts identified special events as a key component of their prevention efforts although all 19 districts offered some form of special event during the course of this study. In five districts, Red Ribbon Week was a major community event. Businesses and community organizations purchased ribbons for all students, town squares were decorated, and many events were scheduled for the schools and the community. In two of these districts, Red Ribbon Week activities were the primary source of prevention information students receive. Of the remaining 14 districts, four districts (10, 14, 15, 16) participated in Red Ribbon Week sporadically (e.g., on a school-by-school basis or if a community group donated the ribbons to schools) and the program coordinators did not emphasize the week as a prevention tool. Two districts (4, 19) have not participated in Red Ribbon Week activities at all.

Generally, special events occurred once a semester or once a year in the 19 study districts. The events included drug-free graduation and/or prom parties, health fairs, anti-smoking poster contests, and assemblies. In one district (12) that identified special events as a key program component, district staff organized numerous school and community events throughout the year. Businesses "adopted schools", boys and girls clubs were established in the schools, and a yearly "Family Zoo Day" was held at the local zoo where parents and their children participated in many activities promoting drug-free lifestyles.

In the next section we discuss the involvement of parents and various community agencies in supplementing the efforts of district and school staff.

Parental and Community Involvement and Support

The DFSCA mandates community involvement as an important part of the overall effort in the fight against drug and alcohol use among youth. Community involvement in the programs of the 19 study districts took many forms and encompassed an array of organizations and individuals, often including them in an advisory council providing oversight and advice on district efforts, program development, and delivery. In addition to parents, the types of groups involved in prevention activities included nonprofit organizations (e.g., drug rehabilitation facilities), law enforcement agencies, state and local human service agencies, and local businesses. Of the 19 districts we studied, 7 identified community involvement as a key component of their overall prevention program (see ***Exhibit 4-3***), although all districts in the study had some level of involvement from the broader community. In recent years (1993-95), 10 program coordinators reported no changes in the overall level of community involvement in their prevention programs. Two districts reported a general increase in community involvement each year; another district specifically cited an increase in school/community agency partnerships, while another district worked more with the juvenile justice system than it had in the past.

Parents

The majority of staff in most districts repeatedly stated throughout the study that involving parents in prevention activities was one of the toughest challenges they faced, for several reasons:

- Most parents believed their children were not using or selling drugs;
- Parents had limited amounts of time to give, especially among single-parent families;
- Some parents were occupied with problems of their own, including drug use, divorce, or domestic violence;
- Parents were unfamiliar with the prevention program.

When parents were involved in district prevention programs, it was typically through volunteering to help with special events, such as Red Ribbon Week, drug-free graduation parties, health fairs, and the like. Occasionally, parents provided prevention instruction to students or were themselves recipients of prevention programming. Since 1993, 11 districts reported no significant changes in the level of parental involvement in their prevention activities. Several program coordinators stated "parental involvement is still a challenge" and districts continually attempted new means of soliciting parental assistance in the district prevention efforts. Four districts reported an increase in parental involvement during the last two years (e.g., more parents signing up for training sessions offered by the prevention staff). One district eliminated their parental involvement component, which included a part-time parent advocate and workshops for parents, due to funding cuts.

Two districts provide examples of substantial parental involvement. Parents in District 12 worked for passage of the 1992 county property tax to continue funding the district's prevention program.[18] In addition, thousands of parents had participated in prevention program-sponsored training, classes, and conferences. District staff published and distributed a monthly prevention newsletter for parents and students. Family Zoo Day was a major prevention-oriented activity sponsored by the prevention program at a local zoo that drew hundreds of students and their families together for participation in prevention activities.

In District 17, parents initiated efforts to implement the *Just Say No* curriculum at the elementary school level and provided the impetus for teaching the classes during the school day rather than after school. Parent volunteer groups taught the curriculum once a month during health classes. In one of the district's schools, staff and minority parents succeeded in several efforts to improve school-community relations and implement drug prevention training for parents by parents throughout the community.

Fourteen districts have offered ***training for parents***, either because the parents volunteered to administer or assist with a program's implementation (for example, teaching or helping to teach drug awareness and prevention classes) or because the training topics included parenting skills, identification of chemical use, or prevention strategies. Five districts (1, 2, 9, 12, 18) offered parents violence-related training sessions during 1993-94 and/or 1994-95.

Low attendance by parents often led districts to drop such training opportunities or prevention education sessions. An exception was District 9, where prevention staff changed their tactics to target a larger number of parents to attend their parenting seminars. District 14 had an overwhelming response from parents wishing to participate in student support training, but due to shortages of funds and staff at the district prevention office, the district discontinued the effort. A few districts offered training to community members addressing such topics as AOD prevention, student support, and violence-prevention.

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[18] An increase to the county property tax to support the district's prevention program was proposed and placed on the local ballot in May 1987. The tax passed and from 1988 through 1992, it supported the prevention program in the amount of $500,000 each year. The tax was presented for renewal in May 1992, along with several other proposed taxes to benefit the schools. The drug prevention program tax was the only one that passed, with funding for the district increased to $750,000 per year for the next 5 years.

Law Enforcement Agencies

The most frequent type of community involvement we found in the study districts was use of police officers in the classroom to deliver the D.A.R.E. program. This program, a key student-focused activity in six districts and offered in 10 other districts, typically consists of a one-hour long classroom session per week for 17 weeks, during which the officers provide information on drugs, ways of resisting peer pressure to use drugs, and ways to improve self-esteem. The program is aimed at students in the last year of elementary school, either fifth or sixth graders; however, four study districts also used the program in other grades (kindergarten through grade 7).

Programs similar to D.A.R.E. were a part of prevention efforts in several districts. Examples include the Gang Resistance Education And Training (GREAT) program in District 1 and the Police Education program in District 5 (gang awareness and resistance for grades 11 and 12). In District 13, the police department sponsored a seven-week chemical awareness program for teens under the age of 18 who were arrested for the first time and had no known AOD problems. Police liaison officers in District 16 visit classrooms in grades 7 and 8 to deliver information about the dangers of AOD use and peer pressure. Also, District 6 employed 15 full-time school resource officers (SROs) who were civilian security personnel trained in the Mendez approach to prevention education.[19] Each middle school and high school had its own SRO, and six SROs had rotating schedules to serve the 18 elementary schools. All SROs assisted classroom teachers, upon request, in the delivery of the Mendez curricula. In several elementary and middle schools, SROs conducted a one-class session developed by the district to address drug laws and identification of drugs and drug paraphernalia.

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[19] The district used two curricula published by the Mendez Foundation: (1) *Too Good for Drugs*, for students in kindergarten through grade 6, focuses on increasing student knowledge, self-awareness, and refusal skills; and (2) *Clear Choices*, taught in grades 7 through 12, emphasizes gateway drugs, peer pressure, accurate information, decision making skills, and alternatives to using drugs.

Nonprofit Organizations and Human Service Agencies

Fifteen districts cited the involvement of nonprofit organizations or human service agencies in their prevention programs to provide student counseling, instruction, mentoring, and family education programs. The programs discussed below are examples of districts that have integrated various types of community assistance into their overall prevention efforts.

In District 5, a nonprofit youth and family service agency operated a family resource center at a key elementary school, provided student support through a series of AOD counseling lessons in the middle schools, and operated an outreach program for at-risk elementary students. In the same district, another nonprofit group conducted an educational program for violators of the district drug policy, along with their parents.

In District 10, the state's Division of Families and Children and the state's probation department provided an in-school counselor to assist elementary students who had behavioral problems and were at risk of AOD use. Staff from a local counseling agency assisted counselors from a key middle school in District 14 to conduct support groups. These non-school staff also conducted summer activities and a parent education program for participating youth, with priority given to students who had probation officers.

In contrast, the prevention program coordinator in District 16 relied heavily upon community organizations to provide school-based prevention activities and staff training because he believed it is the most efficient way to provide prevention services to a large urban area. Prevention programs led by the contracted organizations were offered to individual schools on a first-come, first-served basis. Although this arrangement did not allow all schools to be served annually, without the involvement of these organizations, student instruction would have been limited to D.A.R.E. (only in some schools) and information in academic textbooks delivered at teachers' discretion. In this district, the use of community resources seemed to take the place of establishing a school-based prevention program.

Community Councils or Advisory Boards

The DFSCA advisory councils in the study districts included parents, teachers, district administrators, students, clergy, and representatives from business, civic, law enforcement and community organizations. The councils in eleven districts met regularly and their responsibilities included reviewing DFSCA applications, making suggestions to the prevention program coordinator about prevention programming and policy, publicizing the program, and facilitating access to community resources if needed. The two districts described below exemplified a high degree of community involvement in prevention programming.

In 1982, a community task force was established in District 4 to prevent unhealthy lifestyles, including AOD use. This long-standing task force has coordinated prevention activities across schools and the community, publicized events, conducted fund-raising, initiated several programs, and annually funded private and public school AOD prevention projects. Their state's governor cited the task force as the state model for community-based prevention programs.

The school-based prevention activities in District 9 were managed by a local organization that also directed AOD prevention activities for the broader community. The two local school boards (elementary and secondary) established a community substance abuse program to coordinate comprehensive school and community activities for kindergarten through grade 12. The organization members also served as the DFSCA advisory council; a district superintendent headed the council and served as administrative agent for the DFSCA funds; and the prevention program coordinator managed the day-to-day operations of school activities. Committees of the council governed aspects of the school's prevention program, including curriculum, student assistance, peer counselors, D.A.R.E., and a special prevention program for athletes.

Local Businesses

Thirteen of the 19 study districts cited financial and in-kind contributions (e.g., free use of facilities for prevention-related activities) from local businesses for special prevention events or activities such as Red Ribbon Week, field trips, and summer camps. While program coordinators appreciated this support, many stated they would have preferred businesses to offer instead their employees' time to assist with prevention activities. One district that enjoyed such support was District 12; all their schools had at least two "Adopt-a-School" business partners whose employees tutored and mentored students. Some businesses adopted specific schools, others supported a certain prevention program component (e.g., supervising extracurricular activities) in several schools. This district is a notable example of overall community support for a comprehensive prevention program.

Factors Affecting the Programs

The program evaluation literature suggests that, for prevention programs to have a chance at making an impact on the intended outcomes, they must be implemented fully and according to the prescribed plans. Based on our annual visits to the districts during the course of the longitudinal study, we compiled a list of factors that appeared to facilitate a prevention program's implementation and those that seemed to be barriers in each district. We do not have direct evidence of the effect of these factors on program outcomes.

Across all districts, the factors that seem to facilitate the implementation of a district's prevention program are:

- The level of commitment of the program implementors,
- Leadership provided by the prevention program coordinator,
- Community involvement in the program and a sense of shared responsibility for drug prevention and for developing long-term solutions,
- Additional district staff to assist the prevention program coordinator, and
- Recognition at the district level of the importance of reinforcing a school-level commitment to prevention, through the use of school-based prevention coordinators, and emphasizing prevention staff training.

The most common barrier to achieving full implementation of prevention programs is a lack of leadership by the program coordinator, a situation frequently exacerbated by the coordinator having other responsibilities within the district. Other barriers include:

- Program coordinators who do not consistently follow through to monitor what activities are being implemented in the schools,
- Lack of awareness by the program coordinators or other district administrators of the full spectrum of prevention strategies that might be employed,
- Community members, including parents, who do not believe there are drug problems among their youth,
- Other district priorities that interfere with prevention efforts, such as teacher contract negotiations, raising academic standards, or a move toward school-based management. While these pressures have value in their own right, they may impede the progress of a prevention program by occupying time that school staff might otherwise spend on prevention programming. Further, district leadership appears to us to be important in developing prevention programs, and decentralization of decision making from the district to the school level seems to interfere with such leadership.

Student Participation in the Prevention Programs

In the previous section of this chapter we described the kinds of services or activities offered to students as part of the district's drug prevention education program. We also differentiated between programs that provided more, as well as more extensive, services (comprehensive districts) and those that offered much less (comparison districts). We now turn to the critical issue of what the intended recipients (the students attending these schools) actually received from the programs or what they perceived they had received. Our most important findings in this section include the following:

Study Findings:
Student Participation in the Prevention Programs

- ★ More students had received both D.A.R.E. and other classroom instruction than had participated in either student support or peer-led activities.
- ★ Only one-third of the students reported participation in a program that included all four of these components: D.A.R.E., classroom instruction, student support, and peer-led activities.
- ★ The majority of students (over 90 percent) received **some** form of drug prevention education between grades 5 and 9.

To collect student participation data, we supplemented the annual student survey for years 3 and 4 with district-specific questions that asked students about their direct involvement with program activities[20]. The activities were those that each of the districts offered to students in grades 5 through 9. Questions asked about program participation in five general areas: D.A.R.E,[21] other types of classroom instruction (e.g., Here's Looking at You 2000), student support activities (counseling, support groups), and peer-led programs (mediation, leadership). Note that, although the questions were worded to make sure students in each district would recognize the activities they might have participated in, their responses reflected their best recollection of what they received, not what the program actually offered to them. While not an account of the program components delivered to each student (from the district's perspective), the students' perception of what they received can be regarded as a useful indicator of *receipt* of services. In this section we describe the students' reported level of participation in program components and evaluate each district's stated areas of program focus against the students' exposure to those same components. Finally, we evaluate the differences in the level of student participation between comprehensive and comparison districts.

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[20] District-specific questions were formulated with the assistance of the district staff who lead prevention activities and of the prevention program coordinator. The questions used the activity names that students were likely to recognize, such as "CARE Groups," "Quest classes," "GREAT," "D.A.R.E.," etc.

[21] We asked students about this program activity separately from the other classroom instruction activities because it was present in 16 of the 19 school districts and was easily identified by students. However, study districts were not selected on the basis of the presence of this particular activity nor was this prevention program the target of study.

Level of Student Participation. Of the five program components about which we asked questions on the survey (D.A.R.E, other classroom instruction, student support, peer-led programs, and special events), more students said they participated in prevention-related special events (71 percent) than in any other aspects of the prevention program. These events include the annual Red Ribbon Week during which students sign a pledge to remain drug-free; occasional assemblies, presentations, or other awareness-raising activities; drug-free parties; and the like. Furthermore, 7 percent of the students surveyed said this was the **only** type of drug prevention activity in which they had participated in their district, the highest percentage citing a single component as their source of drug prevention education.

Approximately 65 percent of the students reported they had participated in the D.A.R.E program while 67 percent received classroom instruction that was other than or in addition to D.A.R.E. and 17 percent said they had not received any instruction, including D.A.R.E. In general, districts with D.A.R.E programs also tended to offer other classroom instruction (42 percent of students received both). The most frequently cited combination of program components was D.A.R.E, other instruction, and special events, received by 13 percent of the students. About one-third (31 percent) of the students surveyed for this study said that they had participated in student support services and about 32 percent of students had been involved in peer-led programs.

Areas of Program Focus. Although most of the prevention programs in this study provided all five of the program components to some extent (D.A.R.E, other classroom instruction, student support, peer-led programs, and special events), programs varied in the focus and emphasis given to particular program aspects. This was illustrated earlier in this chapter in the discussion of the delivery of the prevention programs. For example, in Districts 7 and 8, the programs consisted mostly of one-time special events, particularly Red Ribbon Week. In contrast, the focus for the prevention program in District 3 was on instruction, while that of District 14's program was on student support services and peer-led programs. An important question to ask was the extent to which these program emphases were reflected in the students' perceived participation in the various program components.

Exhibit 4-4 indicates the percentage of students in both cohorts who reported ever participating in D.A.R.E, other classroom-based prevention instruction, student support, peer-led programs, and special events in each district over the course of the study. A comparison with the program's stated emphases indicates that in general, students' participation for these focus areas was no more likely than it was for other, non-focus areas of the prevention program. For example, while District 5 named instruction, student support services and peer-led programs as key areas of the program, only 19 percent of the students reported attendance for support services and 21 percent reported participation in a peer-led program; 98 percent of the students did report receiving classroom instruction. A likely explanation for this level of participation is that, although an area may be given special focus in a prevention program, the services may not

Exhibit 4-4. Percent of Students Who Reported Participation in Specific Program Components

District	D.A.R.E	Other Classroom Instruction	Student Support	Peer-Led Programs	Special Events
1	94	75	43	20	[a]100
2	87	71	32	50	80
3	[a]0	97	38	44	75
4	96	36	32	63	46
5	90	98	19	21	89
6	93	91	3	[a]0	22
7	96	20	23	29	[c]100
8	[a]0	19	4	40	79
9	95	94	30	28	60
10	[a]0	98	6	34	62
11	53	99	13	[b]0	92
12	58	70	61	18	72
13	57	11	6	25	90
14	75	32	48	31	8
15	91	75	38	55	69
16	25	26	20	26	[c]100
17	90	79	63	50	98
18	60	98	74	22	27
19	83	93	27	55	88
All Districts	65	67	31	32	71

Interpretation: "Among students from school district 1, 94 percent reported participation in the D.A.R.E. program. This component was not among those considered by the district staff as central to the prevention program."

[a] Component is not offered in this district.

[b] No question asked in this category. Assumed 0 percent because component was only available to few students.

[c] No question asked in this category. Assumed 100 percent participation for district.

Note: Shaded sections indicate components that the district coordinator considered central to the district prevention program.

Source: Supplement to the Student Survey 1993-95 for individual districts, N=7,221; program data 1992-95 be intended for all students, but instead target certain groups of students. Thus, only a fraction of the school's students will ever participate in that component. Second, services such as peer-led programs and student support may be more recent additions to the programs than D.A.R.E and classroom instruction, and therefore not all students in the sample received these.

Regardless of the program emphases for particular program components, it is clear from ***Exhibit 4-4*** that programs that include D.A.R.E tend to have high student participation levels for this component; except for District 16, over 50 percent of students in districts with D.A.R.E reported participation in this program and in many districts student participation was over 90 percent. This occurs primarily because D.A.R.E is delivered systematically at particular grade levels so that all students in those grades receive the program.

Most of the districts in the study also offered other forms of classroom instruction, and students' responses indicated that a majority (67 percent) had received such services. Participation in special events was also uniformly high (over 60 percent for most districts). On the other hand, district variation was very evident for student participation in support services and peer-led programs. This is most likely a reflection of the districts' different emphases, since not all districts choose to focus on these components. Also, the lower rates of participation for these two components compared to D.A.R.E, instruction, and special events, reflects a reduced scope in the intended audiences.

Multiple Components. We also examined the students' participation in multiple activities, considering only the components that are ongoing for a prevention program (D.A.R.E, other instruction, student support, and peer-led programs), and not the one-time special events. ***Exhibit 4-5*** shows the percentage of students who said they received varying levels of program exposure to these components. Across districts, over 92 percent of students received **some** ongoing program activity (between one and 4 components); however, this was not a uniform finding for all districts. As can be seen, in three of the districts (8, 13, 16), more than 30 percent of the students said they had not received **any** of these program activities, as did 13 percent of the students in district 12. Most students (62 percent) reported having participated in one to two of these activities; in 79 percent of these cases the components were D.A.R.E and classroom instruction. A smaller percentage (30 percent) reported participation in three to four components. The average number of components received by a student in a given district ranged from less than one (district 8) to close to three components (districts 9,15,17,18, and 19).

Exhibit 4-5. Student Participation in Program Components: Percent of Students Participating and Average Number of Components Per Student

District	Number of Components (D.A.R.E, other instruction, student support, peer activities)			Average Number of Components Per Student
	None	1-2	3-4	
1	2	58	40	2.3
2	3	51	46	2.4
3	2	80	18	1.8
4	3	56	42	2.3
5	2	67	32	2.3
6	1	97	2	1.9
7	2	82	16	1.7
8	49	49	2	0.6
9	1	53	46	2.5
10	2	94	4	1.4
11	0	93	7	1.7
12	13	44	43	2.1
13	30	64	5	1.0
14	6	69	26	1.9
15	4	38	59	2.6
16	32	62	6	1.0
17	2	27	71	2.8
18	0	46	54	2.5
19	1	42	57	2.6
All Districts	**8**	**62**	**30**	**2.0**

Interpretation: "Among students from school district 1, 2 percent reported no participation in any of the district prevention program components. On average, students in district 1 had participated in 2.3 out of 4 components of the prevention program while enrolled in that school district."

Source: Supplement to the Student Survey 1993-95 for individual districts; N=7,221

Student Participation in Programs With Different Characteristics. We rated the prevention programs on the program characteristics discussed in the first part of this chapter and used those ratings to describe how the program characteristics related to student participation. Ratings were made along dimensions of: (1) degree of stability (existence of a program rationale, time dedicated by the prevention program coordinator to the prevention program, and length of time the program had been in existence); (2) extensiveness (intensity of instruction and availability of student support and peer-led programs); (3) training for prevention staff; and (4) parent and community involvement. An overall rating of "program strength" was derived as the sum of the individual dimension ratings.

The question we explored using these data was: what level of student participation was associated with prevention programs that had particular strengths? *Exhibit 4-6* presents the

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Exhibit 4-6. Correlations Between Student Participation and Program Characteristics

Dimensions of Program Strength[a]	Student Participation in Program Component				
	D.A.R.E	Classroom Instruction	Student Support	Peer-Led Activities	Special Events
Stability	.07	-.24	.08	-.05	-.13
Extensiveness	.15	.08	.07	-.11	-.03(ns)
Training	.24	.00(ns)	.10	.14	-.28
Parent/Community Support	.33	-.01(ns)	.21	-.05	.04
(Overall Program Strength)	.28	-.06	.16	-.03(ns)	-.14

Interpretation: A negative correlation means that higher values on one variable are associated with *lower* values on the other variable, whereas a positive correlation means that higher values on one variable are associated with higher values on the other variable. The larger the number, the stronger the relationship, regardless of the sign. "Program extensiveness was positively correlated with student reports of participation in the D.A.R.E. program (.15); that is, students participating in more extensive programs were more likely to report participation in D.A.R.E."

[a] Scoring for each of the four dimensions was made on a 1 to 5 scale, where 1=non-existent or minimal and 5=extensive. Possible total scores (overall program strength) ranged from 4 to 20.

Note: ns=nonsignificant at the .01 level. All others significant at p<.01 or lower.

Source: Supplement to the Student Survey 1993-95 for individual districts, N=7,221; program data 1992-95

correlations between student participation in various components of programs and the program characteristics described above. As is evident in the exhibit, nearly all types of student participation were significantly related to all dimensions of program strength — but some relationships are positive while others are negative. Four specific associations seem especially important to us. First, students were more likely to report participation for D.A.R.E in districts that offered more extensive programming, more training for prevention staff, and had stronger parental and community support and involvement. The association with community support is not surprising since the D.A.R.E program is a community effort, run by the local police department. Second, students in programs with strong ties to the community also were more likely to say they had received student support services. This may reflect greater accessibility to community mental health services for districts with established links to the community. Third, in programs with greater stability, students were *less* likely to report having received classroom instruction and participation in special events. Finally, participation in peer-led programs was reported most often in districts with an emphasis on staff training, reflecting the level of training such programs must provide to trainers of peer leaders and to the peer leaders themselves.

The following summarizes our findings for the amount and type of program received (or perceived as having been received) by students in this study:

- More students had participated in special events intended to raise their awareness of drug use issues than in other program activities.
- More students had received both D.A.R.E and other classroom instruction than had participated in either student support or peer-led activities.

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- The majority of students (62 percent) had participated in only 1 to 2 components and in 79 percent of these cases the components were D.A.R.E and classroom instruction.
- Only 30 percent of the students reported that they had participated in a more extensive program that included not only D.A.R.E and classroom instruction, but also student support and peer-led services as well.
- Over 90 percent of students in this study received **some** drug prevention education in the form of: D.A.R.E, classroom instruction, student support or peer-led programs between grades 5 and 9.

Outcomes of Prevention Programs

In this section, we assess the effects of drug prevention programs on students' use of alcohol and other drugs and on their attitudes and behaviors with regard to drug use. We examine the relationship between program characteristics and outcomes for students at various levels of "program participation," and in doing so, we address the following specific questions:

(1) How do outcomes differ for comprehensive and comparison programs?

(2) How do outcomes vary among individual district programs?

(3) How is program strength, defined on a continuous scale, related to student outcomes?

(4) How is program participation, as reported by students, related to outcomes?

Study Findings:
Effectiveness of Prevention Programs and of Students' Program Participation

★ **Few prevention programs appear to have been successful in attenuating the striking increases in student drug use and changes in attitudes and other behaviors observed during the four years of the study. In only one case does it appear that, despite serving a high-risk student population (high poverty, high dropout rates, city schools, high levels of crime), the district's prevention program had positive effects on drug use over the four years. In a few rural districts and, in several cases, in communities with strong ties to a religion that is actively opposed to alcohol, tobacco, and other drugs students reported less dramatic increases in drug use, attitudes, and behaviors over the four-year period of the study.**

— Continued on next page

Study Findings: (continued)

★ The strongest predictors of a student's use of alcohol and other drugs in the later years of the study were: (1) level of use at the first time point (fifth and sixth grades) and (2) the length of time since the first measure (essentially, the student's age — the older, the more use). This suggests that, if drug use patterns and the behaviors and attitudes that sustain them are so well established by the end of elementary school, then prevention programs may need to focus even more attention on the earlier grades.

★ Prevention programs selected as "comprehensive" ***did not*** experience better outcomes than the comparison programs; in fact, in many cases comparison programs seemed to be associated with better student outcomes with regard to:

- lifetime use of all drugs and of individual drugs
- current use of all drugs and of most individual drugs
- increases in drug use over time
- attitudes toward drugs.

★ While the original design of the study focused on contrasting comprehensive and comparison districts, during the course of the study we discovered complications regarding this design. We found that: (1) programs would be better described as falling along the continuum of "comprehensiveness;" and (2) the prevention programs varied so much within districts that the classification of programs at the *district* level as comprehensive or comparison was not meaningful. Subsequent analyses focused on dimensions of "comprehensiveness."

★ When programs were described along four dimensions of "program strength," and when several district characteristics were held constant for all districts, some of these dimensions were related to beneficial outcomes:

- Prevention program "extensiveness," or having an array of well-implemented program services for both the general student population and for students at high risk, was associated with benefits for students: significantly lower lifetime use of drugs, more anti-drug attitudes, and better recognition of the consequences of drug use.
- Prevention program "stability" was associated with more anti-drug attitudes and better recognition of the consequences of drug use.

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Study Findings: (continued)

★ Certain district demographic characteristics were associated with student drug use and attitudes towards drugs:

- rural districts were associated with ***more*** favorable results than suburban/urban districts
- higher levels of district poverty were associated with ***less*** favorable outcomes
- higher proportions of minority students in the district were associated with ***more*** favorable results

★ Changes in attitudes toward and beliefs about drugs changed only slightly across the four years of the study and were related to only a few program characteristics, as noted above. Self-esteem and resistance to peer pressure did not change and were not related to program characteristics.

★ With regard to individual student participation in prevention-related activities:

- Students who reported having received prevention-related classroom instruction and participating in special school-wide events were less likely to use drugs and held more desirable attitudes and perceptions toward drugs than were students who had not participated in these activities.
- While participation in peer-led programs did not appear to show any effects for student outcomes, participation in the D.A.R.E. program was associated with more reports of student drug use and more tolerant views toward drugs.
- Students who reported receiving student support services were, as expected, those who were using drugs to a greater extent and who held more tolerant views toward drugs.

Outcomes for Comprehensive and Comparison Programs

As we described in the introductory chapter, this study included two types of prevention programs: programs that offered a variety of activities for students in all grades (comprehensive programs) and (2) programs that offered a limited number of components and additionally, restricted some of those activities to certain grades (comparison programs). Components that we examined to select districts for the two types of programs were:

- classroom instruction for grades K-12;
- staff training;
- parent involvement ;
- community-involvement;

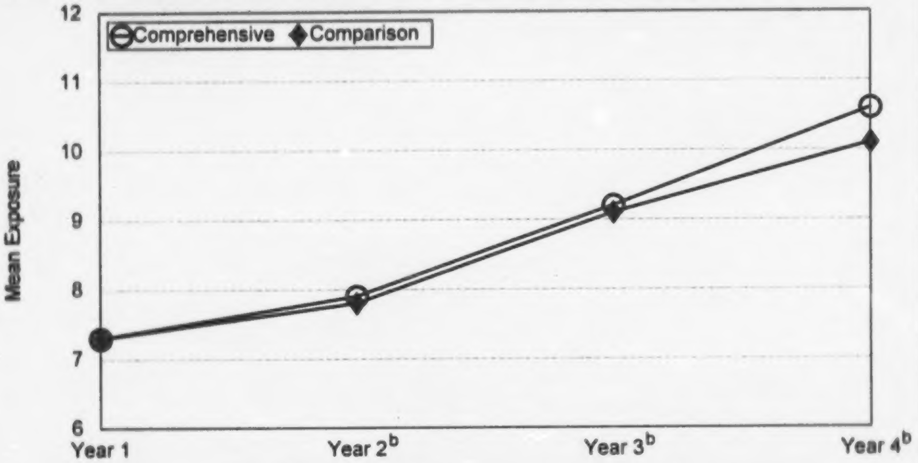
- district-wide policy against drug use;
- one or more program evaluation activities;
- a student assistance program;
- student counseling by staff;
- peer counseling;
- student support groups for prevention; and
- self-awareness or social adjustment activities.

We described and compared the participating districts' prevention programs in the first two sections of this chapter. In this section we focus on differences in outcomes for districts selected as comprehensive and those selected as comparison districts. While this was the original focus of the study, we discovered over the course of the study that districts would be better described as falling along a continuum of "comprehensiveness." Later sections of this chapter examine outcomes for districts with different levels of program comprehensiveness.

In exploring the effectiveness of the districts' prevention programs, the first issue we examined was the extent to which students in comprehensive and comparison districts experienced similar or dissimilar rates of drug use over the course of the four years of the study. In addition to analyses which considered students' use of each of several drugs (reported below), we also constructed two composite measures of "drug exposure" — lifetime exposure and current exposure (past 30 days) — each of which reflected both use and frequency of use across the five drugs: alcohol, cigarettes, marijuana, smokeless tobacco, and inhalants. (Each of these variables has a potential range of values from 6 to 24, with 6 indicating no use of any drug and 24 indicating extensive use of all the drugs). Both lifetime and current use measures are important outcomes. "Lifetime" use obviously reflects a much longer time period and will indicate past use even if the student is not currently engaging in drug use; "current" use, not as stable a measure as the former, is more amenable to change as a result of intervention (that is, a student can discontinue current use, but previous lifetime use will still remain).

Exhibit 4-7 shows the lifetime exposure experienced by students in the two types of programs, during each year of the study. We analyzed these data using analyses of variance with two factors: program type (comprehensive vs. comparison) and time (Year 1, Year 2, Year 3, Year 4). The results presented in ***Exhibit 4-8*** show that lifetime exposure increased dramatically over time (main effect for time) and that this relationship was much stronger than

Exhibit 4-7. Mean Lifetime Exposure to All Drugs[a], by Program Type and Year



Interpretation: "In year 1, students in both comprehensive and comparison districts had a mean lifetime exposure to all drugs of 7.3, based on students' responses to questions on drug use."

[a] Lifetime exposure is the sum of lifetime use responses for alcohol (any amount), alcohol (enough to get drunk), cigarettes, marijuana, tobacco, and inhalants. The variable ranges from 6 (never used any drugs) to 24 (used each drug at least 10 times in their lifetime).

[b] Significant difference at p<.01

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-8. Significant Differences in Lifetime Exposure to Drugs[a], by Program Type and Year: Results of an Analysis of Variance Test

Source of Variance	Degrees of Freedom	F-Value[b]
Program Type	1	18.31
Time	3	2155.16
Time x Program Type	3	35.12
Contrast:Time 1 vs. Time 2	1	400.20
Contrast:Time 2 vs. Time 3	1	1194.08
Contrast:Time 3 vs. Time 4	1	994.16

Interpretation: "There is a significant main effect for time (F=2155.16), regardless of program type; that is, lifetime exposure scores changed significantly over the four years of the study."

[a] Lifetime exposure is the sum of lifetime use responses for alcohol (any amount), alcohol (enough to get drunk), cigarettes, marijuana, tobacco, and inhalants. The variable ranges from 6 (never used any of the drugs) to 24 (used each drug at least 10 times in their lifetime).

[b] All statistically significant at p<.0001.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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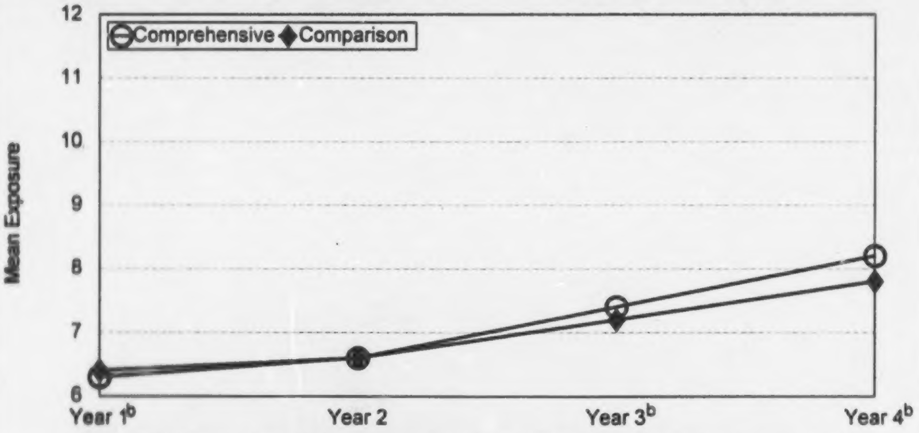
the effect of program type on lifetime exposure (although the latter effect was also statistically significant). The data also revealed that the largest increase in lifetime exposure between one year and the next occurred between Years 2 and 3, corresponding to grades 6 and 7 for the younger cohort, and 7 and 8 for the older cohort; during this time more than half the sample made the transition from elementary schools to middle schools.

The interaction between program type and time is evident in the non-parallel trend lines across time, for the two types of programs. That is, the difference between the two program groups is not the same over time. Significance tests for the differences between comprehensive and comparison districts at each time point indicated that the two groups were not significantly different from one another in Year 1, but that students in comprehensive districts engaged in significantly higher lifetime use in Year 2 ($t=2.66$, $df=7066$, $p \leq .01$), Year 3 ($t=3.9$, $df=7082$, $p \leq .0001$), and Year 4 ($t=6.25$, $df=7074$, $p \leq .0001$). Furthermore, the two trend lines became more divergent with time, indicating that drug use in comprehensive districts increased at a faster rate, compared to that of comparison districts.

Exhibit 4-9 presents the trend lines for recent (30-day) exposure to all drugs, for the two program types. We analyzed these data in a fashion similar to that used for lifetime exposure

Exhibit 4-9. Mean 30-Day Exposure to All Drugs[a], by Program Type and Year



Interpretation: "In year 1, students in comprehensive districts had a mean 30-day exposure to all drugs of 6.3, based on students' responses to questions on drug use, while students in comparison districts averaged 6.4."

[a] 30-day exposure is the sum of current use responses for alcohol (any amount), alcohol (enough to get drunk), cigarettes, marijuana, tobacco, and inhalants. The variable ranges from 6 (did not use any drugs in the past 30 days) to 24 (used each drug at least 10 times in the past 30 days).

[b] Significant difference at $p<.01$

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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(above) and obtained the analytic results presented in ***Exhibit 4-10***. Again, the effect of time (or age) was the strongest influence on recent exposure and the largest increase in use from one year to another occurred between Years 2 and 3. In addition, while comprehensive districts experienced less drug use than comparison districts in Year 1 (t= -2.67, df=7031, p<.01), the two groups did not differ significantly in the second year of the study. In the last two years of the study, 30-day drug exposure increased more rapidly for comprehensive districts than for comparison districts (Year 3: t=3.52, df=5709, p≤.0001; Year 4: t=5.3, df=5632, p≤.0001).

These results for both lifetime and recent exposure to drugs indicated that, while students in comprehensive districts exhibited the same or lower levels of use as those in comparison districts during the first several years of the study, comprehensive program students showed a higher rate of use thereafter. Overall, the programs selected as comprehensive did not appear to result in their students using fewer drugs. On the contrary, students in comprehensive districts appeared to have engaged in higher drug use with increasing age. We are unable to say, based on the results of this study, what accounted for the higher drug use at comprehensive districts compared with the other districts in the study. A possible explanation for this relationship between program and student drug use is that districts that recognize a high level of drug use among their students may be those motivated to develop more comprehensive programs. Thus, their students might continue to use drugs to a greater extent than students in other districts, but

Exhibit 4-10. Significant Differences in 30-Day Exposure to Drugs[a], by Program Type and Year: Results of an Analysis of Variance Test

Source of Variance	Degrees of Freedom	F-Value[b]
Program Type	1	14.57
Time	3	850.20
Time x Program Type	3	23.89
Contrast:Time 1 vs. Time 2	1	107.97
Contrast:Time 2 vs. Time 3	1	463.65
Contrast:Time 3 vs. Time 4	1	354.50

Interpretation: "There is a significant main effect for time (F=850.20), regardless of program type; that is, 30-day exposure scores changed significantly over the four years of the study."

[a] 30-day exposure is the sum of 30-day use responses for alcohol (any amount), alcohol (enough to get drunk), cigarettes, marijuana, tobacco, and inhalants. The variable ranges from 6 (never used any of the drugs) to 24 (used each drug at least 10 times in the past 30 days).

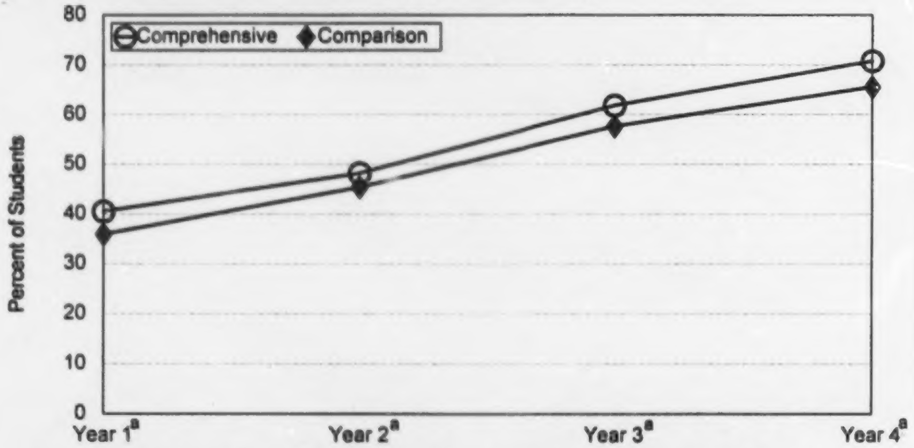
[b] All statistically significant at p<.001.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

their use may actually be lower than it would have been in the absence of the comprehensive program.

As a follow-up to the analyses of overall drug exposure, we also examined the longitudinal trends for use of individual drugs, in both comprehensive and comparison districts. ***Exhibits 4-11*** to ***4-15*** show the proportion of students who ever used alcohol, cigarettes, marijuana, inhalants, and smokeless tobacco. Across the five drugs, students in the two program types exhibited similar increases in lifetime use rates, as evidenced by the parallel and often overlapping trend lines of the two program types. Alcohol use was significantly higher in comprehensive districts than in comparison districts as early as Year 1 (see ***Exhibit 4-11***); however, this difference remained fairly constant across the four years of the study, indicating that the two program types had similar rates of increase in lifetime use. The rates of use of all other drugs were almost identical for the two program types during the first two or three years of the study. In Year 4, students in comprehensive districts exhibited significantly higher use than those in comparison districts for cigarettes, inhalants, and smokeless tobacco; marijuana use did not differ significantly between the two types of programs.

Exhibit 4-11. Lifetime Use of Alcohol, by Program Type



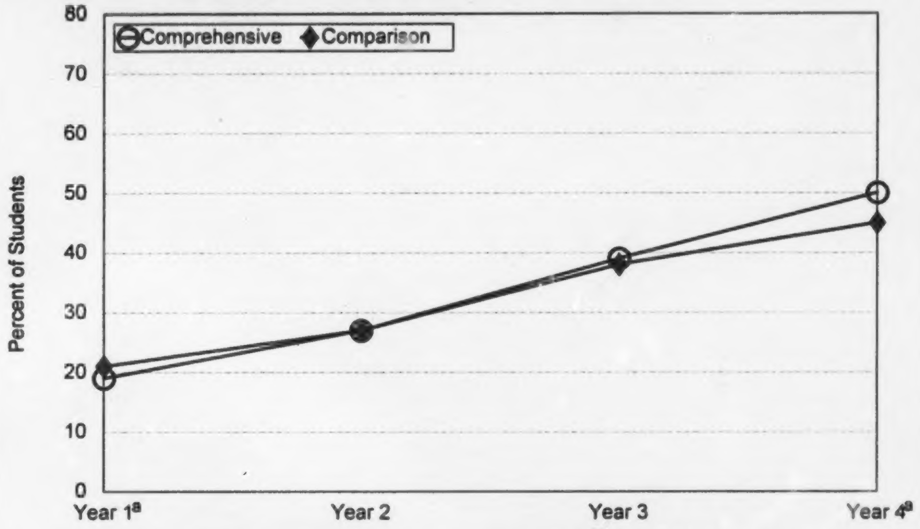
Interpretation: "In year 1, 41 percent of students in comprehensive districts and 36 percent of students in comparison districts reported they had used alcohol (more than a sip) at least once in their lifetime."

[a]Significant difference at p<.05

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Alcohol was defined as beer, wine, wine coolers, or liquor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-12. Lifetime Use of Cigarettes, by Program Type

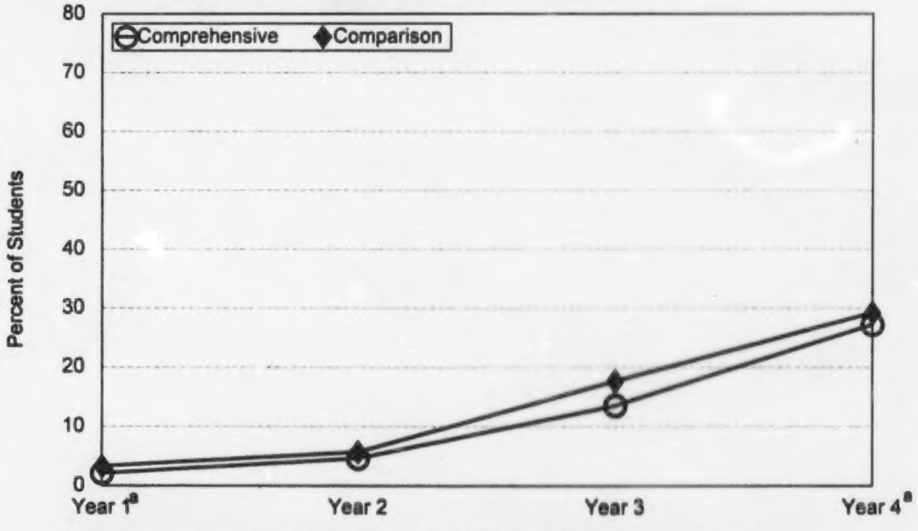


Interpretation: "In year 1, 19 percent of students in comprehensive districts and 21 percent of students in comparison districts reported they had smoked cigarettes at least once in their lifetime."

[a] Significant difference at p<.05

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-13. Lifetime Use of Marijuana, by Program Type



Interpretation: "In year 1, 2 percent of students in comprehensive districts and 3 percent of students in comparison districts reported they had smoked marijuana at least once in their lifetime."

[a] Significant difference at p<.05

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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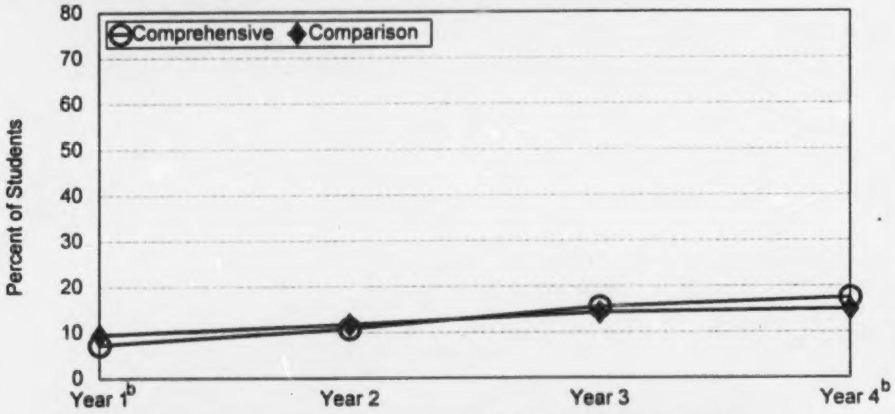
Exhibit 4-14. Lifetime Use of Inhalants[a], by Program Type



Interpretation: "In year 1, 7 percent of students in comprehensive districts and 10 percent of students in comparison districts reported they had used inhalants to get high at least once in their lifetime."

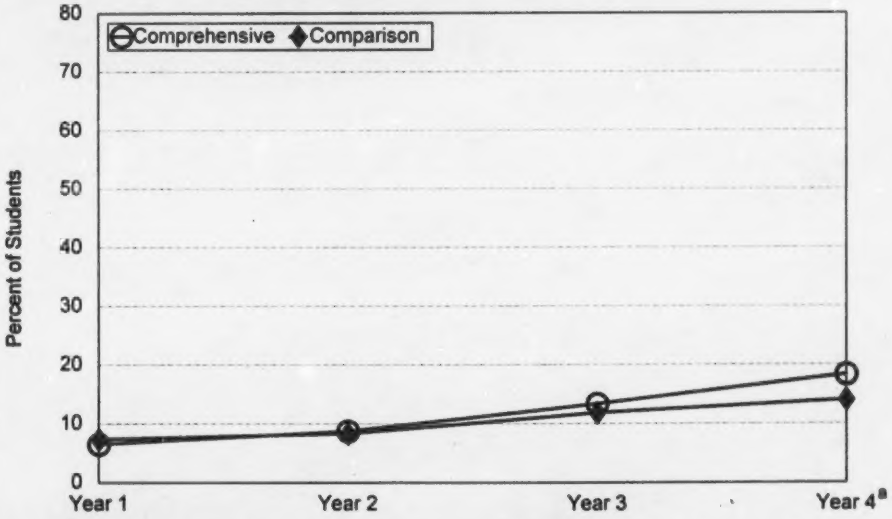
[a] Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

[b] Significant difference at p<.05

Note: Students were asked to exclude from their responses any medications prescribed by their own doctor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-15. Lifetime Use of Smokeless Tobacco, by Program Type



Interpretation: "In year 1, 6 percent of students in comprehensive districts and 7 percent of students in comparison districts reported they had used smokeless tobacco at least once in their lifetime."

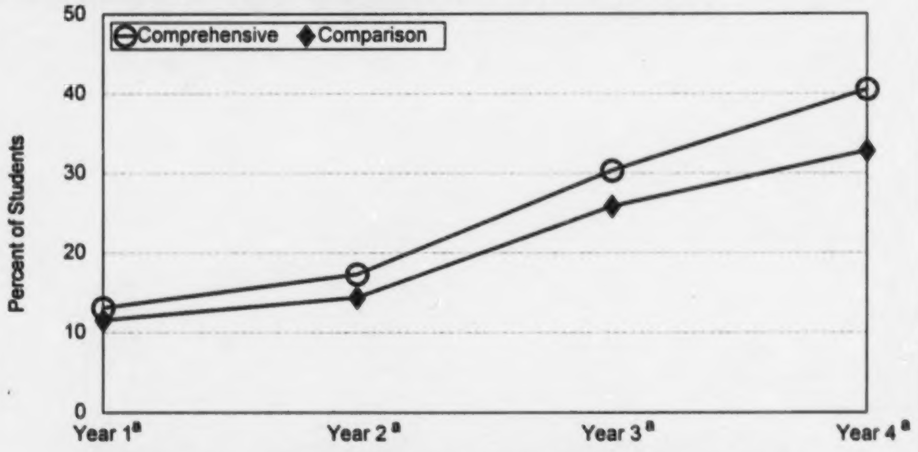
[a] Significant difference at p<.05

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibits 4-16 to ***4-20*** show the trend lines for use of each drug in the 30 days prior to the survey each year, for each program type. These results were very similar to those obtained for lifetime use: parallel and often superimposed trends for the first several years of the study for cigarettes, marijuana, inhalants, and tobacco, and significantly higher use in comprehensive districts by Year 4 for cigarettes, inhalants, and smokeless tobacco. Although marijuana use in comprehensive districts was not significantly different from that in comparison districts in Year 4, the trend lines suggest that students in comprehensive districts were beginning to use marijuana at a faster pace than students in comparison districts. Thirty-day alcohol use was significantly higher for comprehensive districts than for comparison districts at each time point; in addition, alcohol use appeared to have a more accelerated rate of increase for comprehensive districts after Year 3, as evidenced by the divergent trend lines at Year 4.

These results for lifetime and 30-day use of individual drugs showed that students participating in the two program types, comprehensive and comparison, experienced fairly similar rates of drug use over the course of the four years of the study. The data also suggest that by the eighth and ninth grades, students in the comprehensive districts were beginning to use drugs at a faster rate than those in comparison districts.

Exhibit 4-16. Current (30-Day) Use of Alcohol, by Program Type



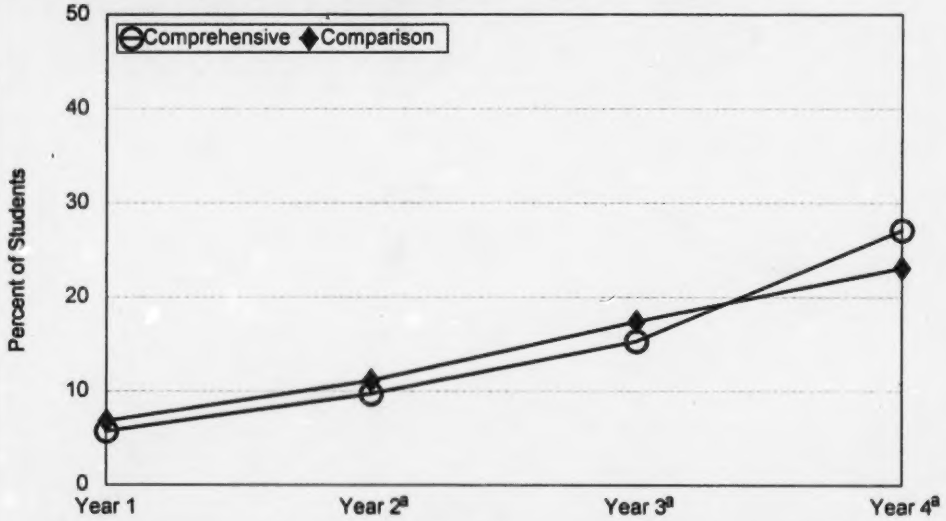
Interpretation: "In year 1, 13 percent of students in comprehensive districts and 12 percent of students in comparison districts reported they had used alcohol (more than a sip) at least once during the past month."

[a] Significant difference at p<.05

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Alcohol was defined as beer, wine, wine coolers, or liquor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-17. Current (30-Day) Use of Cigarettes, by Program Type

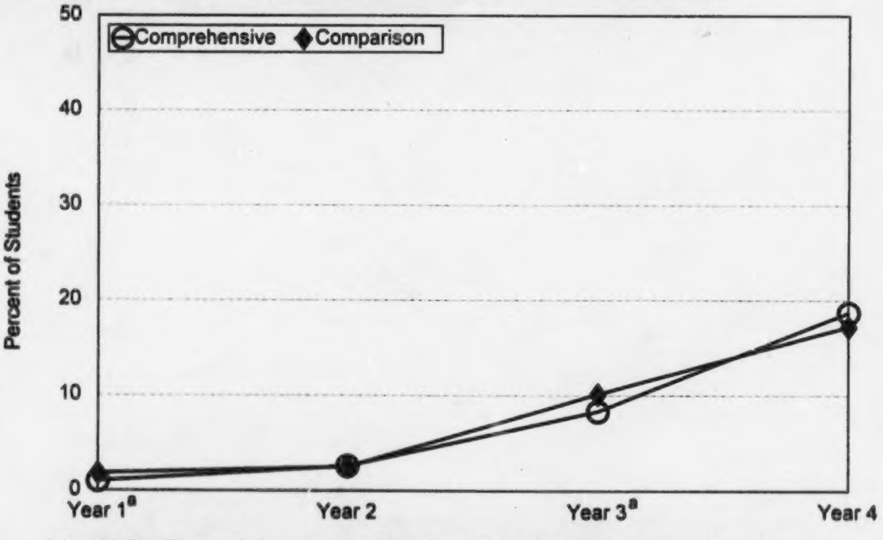


Interpretation: "In year 1, 6 percent of students in comprehensive districts and 7 percent of students in comparison districts reported they had smoked cigarettes at least once during the past month."

[a]Significant difference at $p<.05$

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-18. Current (30-Day) Use of Marijuana, by Program Type

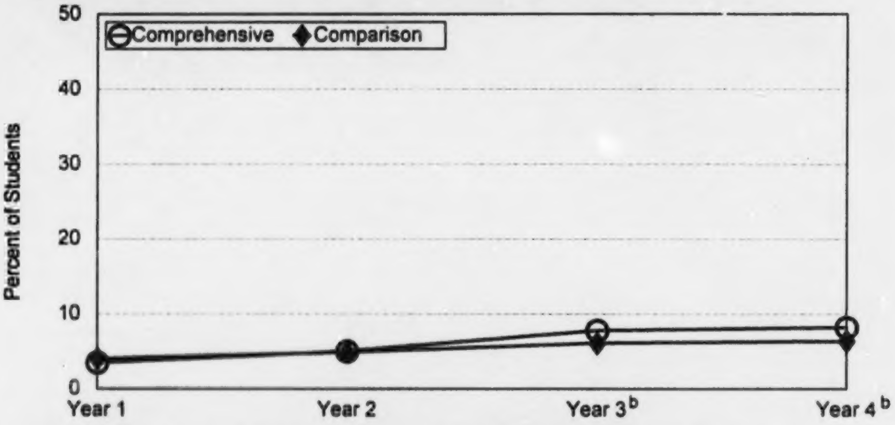


Interpretation: "In year 1, 1 percent of students in comprehensive districts and 2 percent of students in comparison districts reported they had smoked marijuana at least once during the past month."

[a]Significant difference at $p<.05$

Source: Student Survey 1992-95 (items E1-E25), N=7,221

Exhibit 4-19. Current (30-Day) Use of Inhalants[a], by Program Type



Interpretation: "In year 1, 3 percent of students in comprehensive districts and 4 percent of students in comparison districts reported they had used inhalants to get high at least once during the past month."

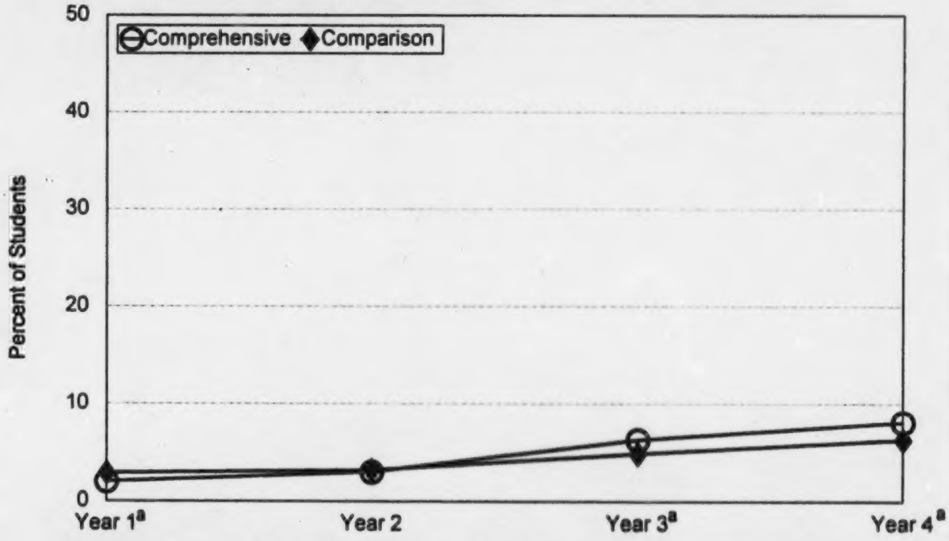
[a] Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

[b] Significant difference at $p<.05$

Note: Students were asked to exclude from their responses any medications prescribed by their own doctor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-20. Current (30-Day) Use of Smokeless Tobacco, by Program Type



Interpretation: "In year 1, 2 percent of students in comprehensive districts and 3 percent of students in comparison districts reported they had used smokeless tobacco at least once during the past month."

[a] Significant difference at $p<.05$

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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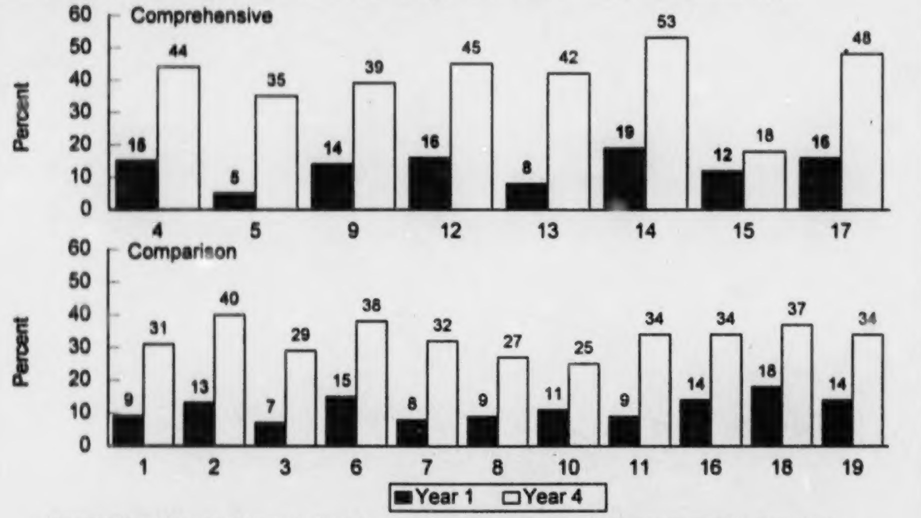
Outcomes for Individual Districts Within Program Type

In an effort to understand further the relationship among program characteristics and student drug use behaviors, we conducted a number of additional analyses, looking at drug use within individual districts, across all districts, and among groups of districts with common characteristics.

District-by-district differences in drug use. Exhibits 4-21 to ***4-25*** contrast the current, or 30-day, use of alcohol and other drugs in Years 1 and 4 within each district (comprehensive districts are in the upper row of each exhibit, with comparison districts in the lower row). Several observations can be made from these exhibits. First, consistent with the aggregated results shown in ***Exhibits 4-11*** through ***4-20***, most districts experienced a pronounced surge in drug use between Years 1 and 4, particularly for alcohol, cigarettes, and marijuana. Increases in current use of inhalants and smokeless tobacco were much smaller and, in some districts, current use of these drugs actually declined. For individual districts, this experience varied with the type of substance. For example, Districts 13 and 14 had similar net increases in alcohol use; however, smokeless tobacco use increased more for students in District 13 and marijuana use became more pronounced in District 14. Second, consistent with the findings presented above,

Exhibit 4-21. Change in Current (30-Day) Alcohol Use, by Program Type

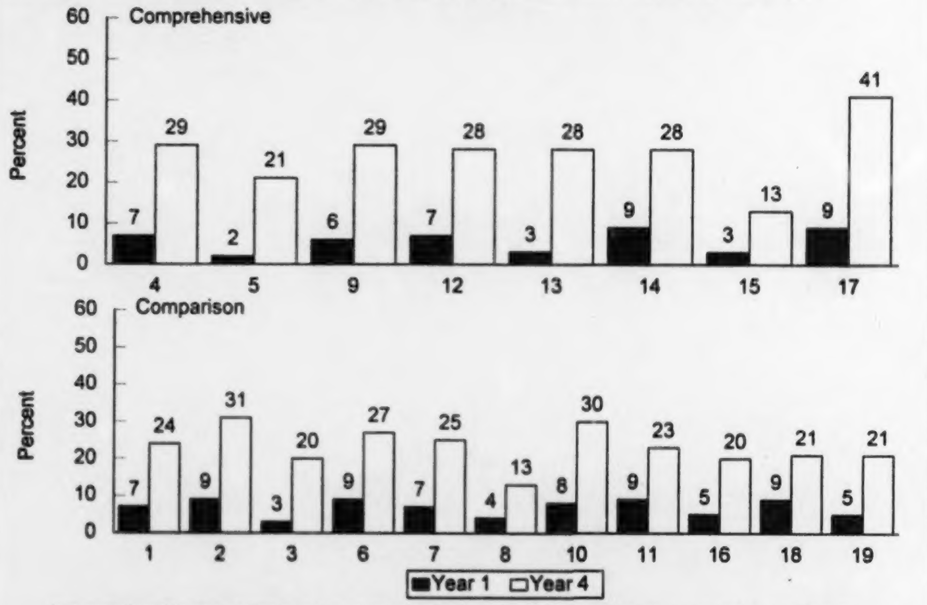


Interpretation: "Among students in district 4 (a comprehensive district), 15 percent reported in year 1 that they had used alcohol (more than a sip) at least once during the past month; 44 percent reported doing the same in year 4."

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Alcohol was defined as beer, wine, wine coolers, or liquor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

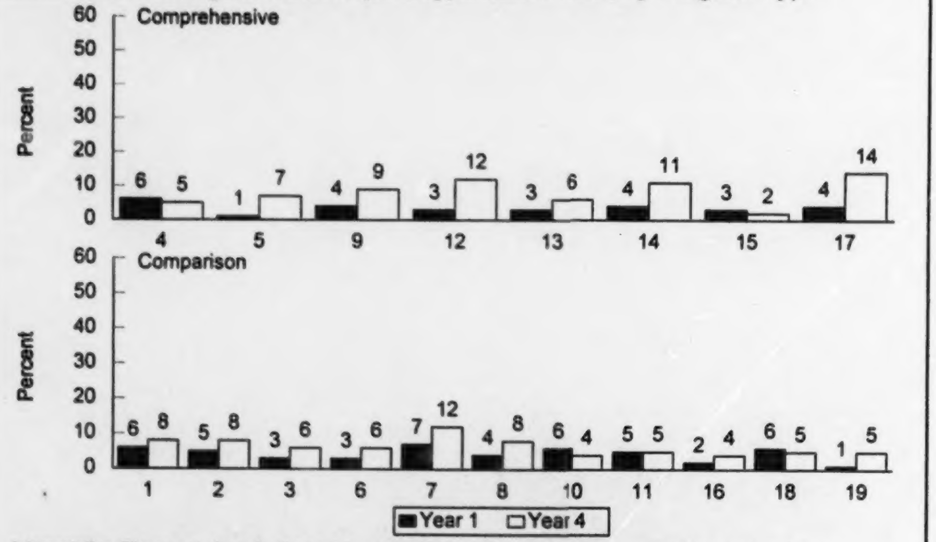
Exhibit 4-22. Change in Current (30-Day) Cigarette Use, by Program Type



Interpretation: "Among students in district 4 (a comprehensive district), 7 percent reported in year 1 that they had smoked cigarettes at least once during the past month; 29 percent reported doing the same in year 4."

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-23. Change in Current (30-Day) Inhalant Use*, by Program Type



Interpretation: "Among students in district 4 (a comprehensive district), 6 percent reported in year 1 that they had used inhalants at least once during the past month; 5 percent reported doing the same in year 4."

*Inhalant use was defined as "sniffing glue or gas (or other things to get high)."

Note: Students were asked to exclude from their responses any medications prescribed by their own doctor.

Source: Student Survey 1992-95 (items E1-E25); N=7221

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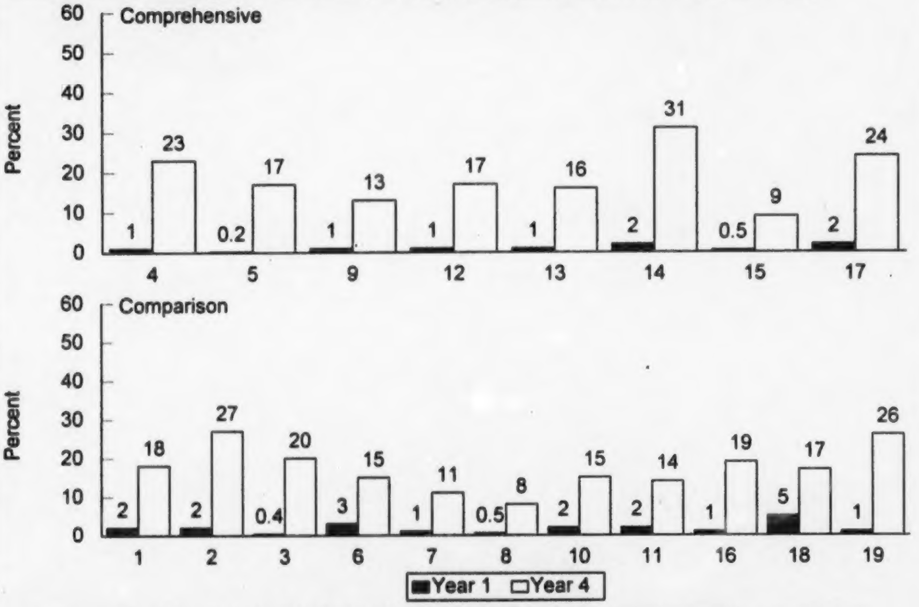
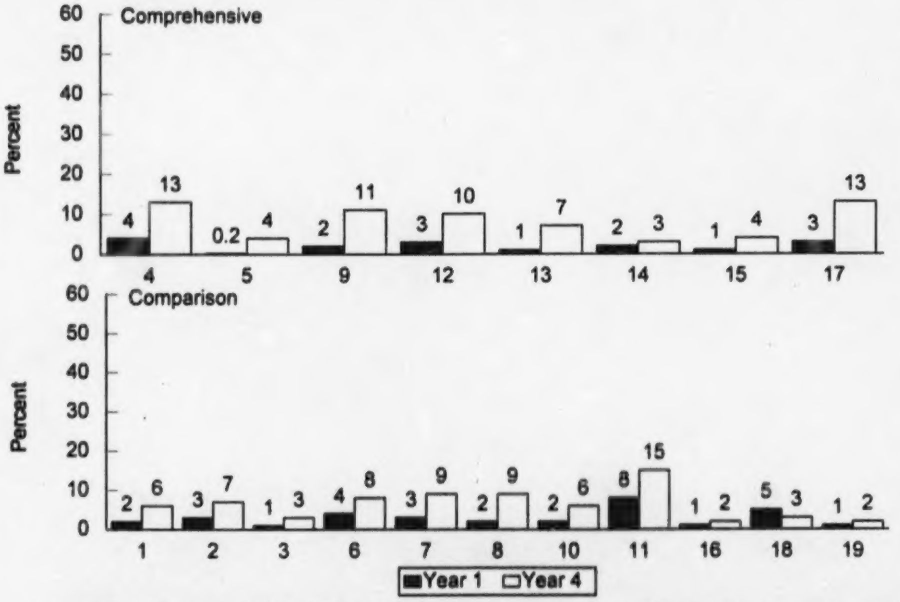
Exhibit 4-24. Change in Current (30-Day) Marijuana Use, by Program Type



Interpretation: "Among students in district 4 (a comprehensive district), 1 percent reported in year 1 that they had smoked marijuana at least once during the past month; 23 percent reported doing the same in year 4."

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-25. Change in Current (30-Day) Smokeless Tobacco Use, by Program Type



Interpretation: "Among students in district 4 (a comprehensive district), 4 percent reported in year 1 that they had used smokeless tobacco at least once during the past month; 13 percent reported doing the same in year 4."

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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the tremendous increases in drug use were as evident in comprehensive districts as they were in comparison districts. There was no evidence that students attending comprehensive programs were more inclined to avoid drugs as they got older than those attending comparison programs.

One comprehensive district's results are notable, however. Despite facing a number of social problems common to urban areas--poverty, unemployment, family disruption, high crime rates, high dropout rates, high pregnancy rates--all of which are considered factors that place teenagers at high risk for drug use, our findings show that the increases in drug use reported by students in district 15 were less pronounced than in most other districts. Although we are unable to determine from this study what particular feature or combination of features of the prevention program had an impact on students' drug use, we can describe the salient characteristics of this program that distinguish it from the others in the study. District 15 uses an elementary-grade-level curriculum that was favorably reviewed in a recent guide to prevention programs.[22] Although other study districts were employing curricula that were also given positive ratings, no other district in the study was using this particular curriculum. Among the strengths attributed to this program were: extensive coverage of life skills, and above-average coverage of various awareness and resistance skills. Evaluation results cited in the report indicated that the curriculum had significant impacts on tobacco use and on attitudes and knowledge related to health. Other unique strengths of this district's prevention program include: (1) a full-time district coordinator who has been very effective at integrating community resources and using those resources to extend the services provided by the program; and (2) comprehensive teacher training that includes baseline training in drug use for all teachers, advanced training for staff at certain grade levels, and training for staff working with specific at-risk groups such as children of alcoholics.

As the drug use findings described above indicate, districts were already experiencing different levels of drug use in the first year of the study and therefore comparisons that are made between districts should consider not only the end results for Year 4 but also the amount of increase in use over time. One way to place the districts on a common basis for comparison is to examine the rate of increase in drug use among those students who had not experimented with drugs in Year 1. ***Exhibits 4-26*** to ***4-28*** present the proportion of Year 1 non-users who a

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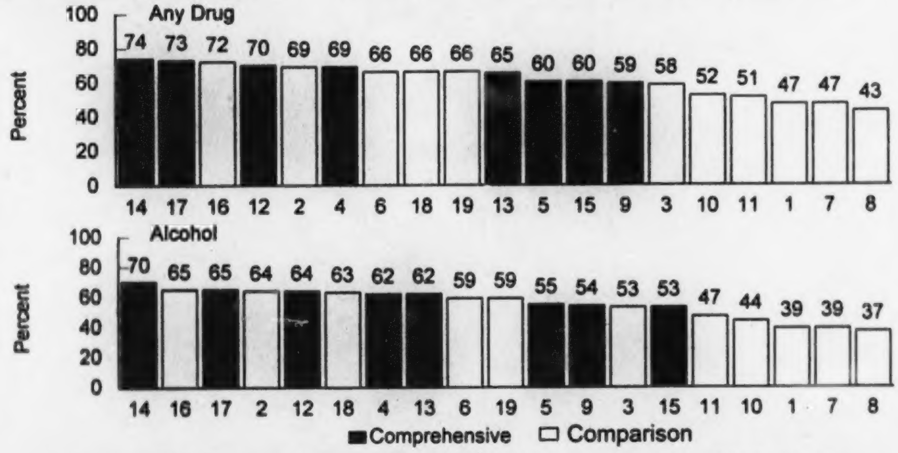
[22] Making the Grade: A Guide to School Drug Prevention Programs. Drug Strategies, 1996.

Exhibit 4-26. Proportion of Year 1 Non-Users[a] Who Tried Drugs by Year 4



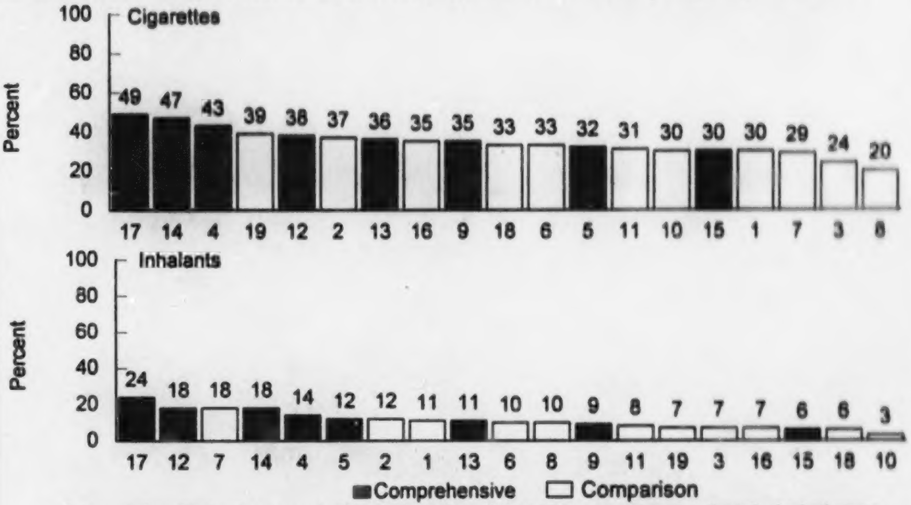
Interpretation: "Seventy-four percent of the students from district 14 (a comprehensive district) who had never tried drugs in year 1 reported ever doing so by year 4. Among those who had never tried alcohol in year 1, 70 percent reported ever doing so by year 4."

[a]Students who had never had alcohol (more than sips), cigarettes, inhalants, marijuana or smokeless tobacco in year 1.

Note: Students were asked to exclude from their responses any occasional sips of alcohol their parents allow them to have, wine taken during religious ceremonies, or medications prescribed by their own doctor. Alcohol was defined as beer, wine, wine coolers, or liquor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

Exhibit 4-27. Proportion of Year 1 Non-Users[a] Who Tried Drugs by Year 4



Interpretation: "Forty-nine percent of the students from district 17 (a comprehensive district) who had never smoked cigarettes in year 1 reported ever doing so by year 4. Among those who had never tried inhalants in year 1, 24 percent reported ever doing so by year 4."

[a]Students who had never had alcohol (more than sips), cigarettes, inhalants, marijuana or smokeless tobacco in year 1.

Note: Students were asked to exclude from their responses any medications prescribed by their own doctor.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

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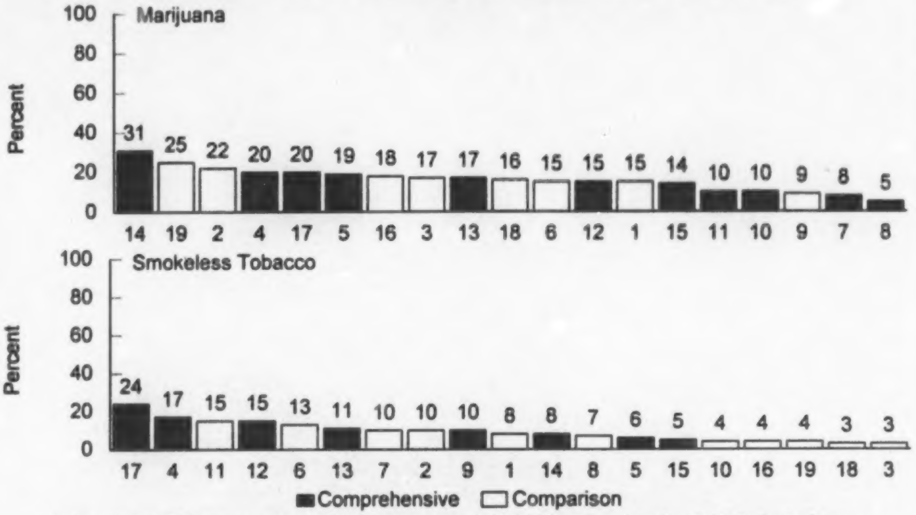
Exhibit 4-28. Proportion of Year 1 Non-Users* Who Tried Drugs by Year 4



Interpretation: "Thirty-one percent of the students from district 14 (a comprehensive district) who had never smoked marijuana in year 1 reported ever doing so by year 4. Twenty-four percent of the students from district 17 (a comprehensive district) who had never used smokeless tobacco in year 1 reported ever doing so by year 4."

*Students who had never had alcohol (more than sips), cigarettes, inhalants, marijuana or smokeless tobacco in year 1.

Source: Student Survey 1992-95 (items E1-E25); N=7,221

subsequently reported using drugs in Year 4 (whom we will call "new users"). Theoretically, successful program would be one that would prevent non-users from becoming new users; therefore, the smaller the proportion of new users the better. Within each graph, the 19 districts are displayed in descending order of the proportion of new users; thus, the districts shown at the right of each graph are the most successful in preventing new users for that drug or drugs. We present results for use of any drug, and individually for alcohol, cigarettes, inhalants, marijuana, and smokeless tobacco. Several observations can be made from these data. First, there is a wide range in results for individual districts and this varies with the particular drug. As we saw earlier, a few individual districts experienced relatively slower rates of increase in use over time, but for select drugs. For example, Districts 1, 7, and 8 had better results for drug use in general, alcohol, cigarettes, and marijuana, but were no better off for inhalant or smokeless tobacco use than most other districts.

An exception was district 15, which had consistently favorable results across all drugs when compared with the results of other districts with similar demographic characteristics. As we noted earlier in this section, this district's prevention program is distinguished from those of the other participating districts by its use of a particular curriculum that has shown evidence of

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effectiveness in the research literature, and by its strong leadership, extensive teacher training, and successful integration and use of community resources.

Second, as a general observation, the districts with the highest rates of new users were those with comprehensive programs, while those with the lowest rates were districts with comparison programs. Four of the comparison programs with the lowest rates of new users for "any drug" (Districts 7, 8, 10, 11) also had other salient demographic characteristics; namely, they were all rural districts. District 1, also among the five districts with the lowest use, had in common with two of the others in that group (Districts 7 and 8) communities with a large proportion of families that were self-identified as members of a religious denomination that is specifically opposed to all use of alcohol, tobacco, and other drugs.

Differences in attitudes and beliefs. Next, we examined the attitudes and beliefs of students in each district and also within comprehensive and comparison programs. We expected the results for attitudes towards drugs to parallel results for drug use changes since the two were found to be highly correlated for these data, and this turned out to be the case. Changes in average scale scores from Year 1 to Year 4 for general attitudes toward drugs, attitudes towards specific drugs, perceived peer attitudes toward the specific drugs, and perceived consequences of drug use, were much smaller than those for drug use but in a complementary direction (that is, increases in drug use were associated with decreases in anti-drug attitude). As with drug use, attitudes of students in one program type did not appear to have changed less than those of students in the other program type.

Scores on self-esteem and resistance to peer pressure did not change more than one point between Years 1 and 4, and this result was no different for comprehensive programs than it was for comparison programs.

Relationship Between Program Strength and Outcomes for Students

Across the 19 districts, prevention programs varied a great deal in the number and types of activities and services they provided to students. Programs for this study were selected such that they fell at either the low end or the high end of this continuum; that is, they offered numerous activities and services to a majority of the students ("comprehensive") or they offered a reduced number of services to a smaller proportion of the student body ("comparison"). ***After gathering extensive data, however, we found that the two groups of programs actually overlapped along the continuum — they were not two distinct groups at all.*** In this section, we examine program characteristics that go beyond the distinctions of comprehensive and comparison to try to determine whether particular program features were associated with better results for student drug use and behaviors.

When our project staff conducted case study and cross-site analyses on the program data, we identified four aspects or dimensions of programs that seemed to us to reflect program quality and strength. These dimensions distinguished among programs that were more fully implemented and organized, and those that had very basic programs with few ongoing activities for staff and students. Project staff evaluated the programs in the 19 participating districts, rating each district's program on a five-point scale for each of these dimensions:

(1) Stability — length of time in existence, time devoted by the prevention program coordinator in directing the program, existence of a program rationale to guide the program;

(2) Extensiveness — program activities for all students, amount of classroom instruction, extent of program implementation, additional services such as support groups, peer programs, and a student assistance program;

(3) Staff training — number of staff trained, amount of training offered, ongoing nature of training;

(4) Parental and community support and involvement — degree to which the parents and community demonstrated support for the program; includes involvement of the local police department in delivery of the D.A.R.E. program.

We also created a combined score (the sum of the four factors) called program strength.

As seen in ***Exhibit 4-29***, the programs' total scores on these four dimensions ranged from a score of 7 (District 3) to a score of 18 (District 12) on a scale with possible scores of 4 through 20. District 3 exemplified a prevention program with minimal and uneven program implementation, infrequent staff training, little parental and community involvement, and no overriding rationale for planning and guiding the program. The highest scoring district (12) exemplified one where multiple services were made available to all students, specific services were targeted to certain high risk groups, training for staff was well implemented, and the district enjoyed long-term financial support from the community. The district's program also had been in existence since 1979 and supported a large number of prevention staff in addition to a full-time prevention program coordinator. With the exception of two districts (comparison

Exhibit 4-29. District Scores[a] on Dimensions of Program Strength, Arranged in Descending Order of Strength

District[b]	Dimensions of Program Strength				Total Score
	Stability	Program Extensiveness	Staff Training	Parent/Community Support	
C-12	5	5	4	4	18
C-4	5	3	5	4	17
C-15	3	3	4	3	13
C-5	3	5	3	2	13
C-9	4	4	3	2	13
C-14	4	3	4	2	13
M-1	4	3	2	4	13
C-13	5	3	2	2	12
M-6	3	2	3	3	11
M-16	4	2	1	4	11
M-18	3	2	2	3	10
M-2	2	1	3	3	9
M-8	3	2	3	1	9
M-7	2	2	2	3	9
M-19	2	1	4	2	9
C-17	2	2	3	2	9
M-11	2	2	2	2	8
M-10	2	3	2	1	8
M-3	2	1	2	2	7

Interpretation: "District 12 (a comprehensive district) received 5 out of 5 points on program stability and a total score of 18 out of 20 points across all dimensions of program strength."

[a] Scoring for each dimension was made on a 1-5 scale, where 1=non-existent or minimal and 5=extensive.

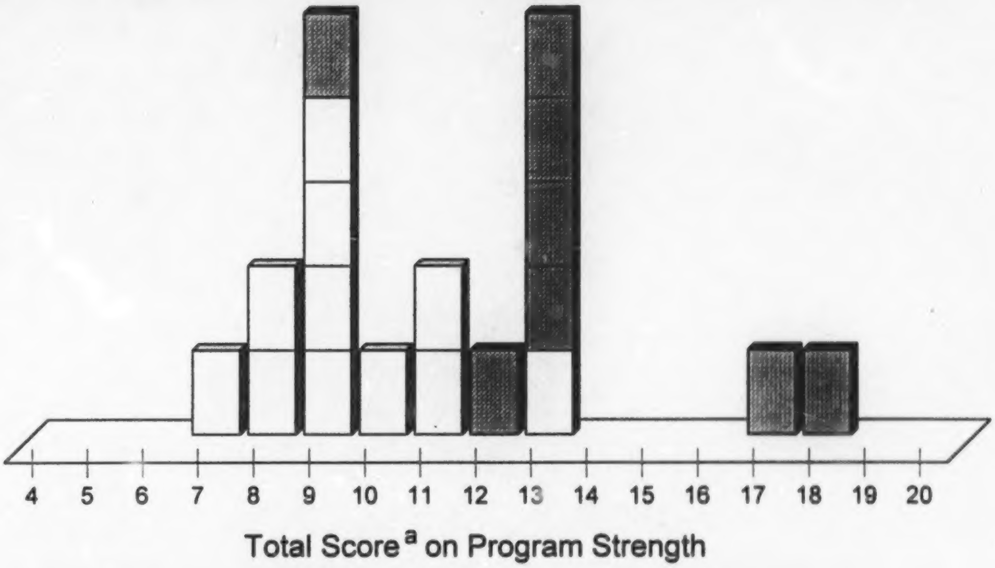
[b] C=Comprehensive program, M=Minimal or Comparison program.

Source: Program data 1992-95

District 1 and comprehensive District 17) the comprehensive district programs had higher scores than those of the comparison districts. Further, program strength (the total score on the four dimensions) was correlated .71 ($p<.0001$) with the comprehensive/comparison distinction. This lent support to the intuitive characterization of "stronger" programs as comprehensive and the "weaker" programs as comparison. The correlation between program strength and the comprehensive/comparison distinction was not perfect, however, meaning that our original classifications of "comprehensive" and "comparison" programs overlapped in terms of program strength. This point is illustrated in ***Exhibits 4-30*** and ***4-31***. In these figures, the boxes with the dark shading represent districts originally categorized as comprehensive.

The question we attempted to answer here was: to what extent was program strength, as defined by these dimensions of stability, extensiveness, staff training, and parent/community support, associated with desirable outcomes for students? We conducted multiple regression analyses to predict student outcomes in Year 4 from program strength (using the 4 dimensions),

Exhibit 4-30. Distribution of District Prevention Programs' Scores on Program Strength



Interpretation: "Five districts scored 9 points out of 20 on program strength; four of these were comparison districts and one was a comprehensive district."

[a]Scoring for each of four dimensions was made on a 1-5 scale, where 1=non-existent or minimal, and 5=extensive. Possible total scores ranged from 4 to 20.

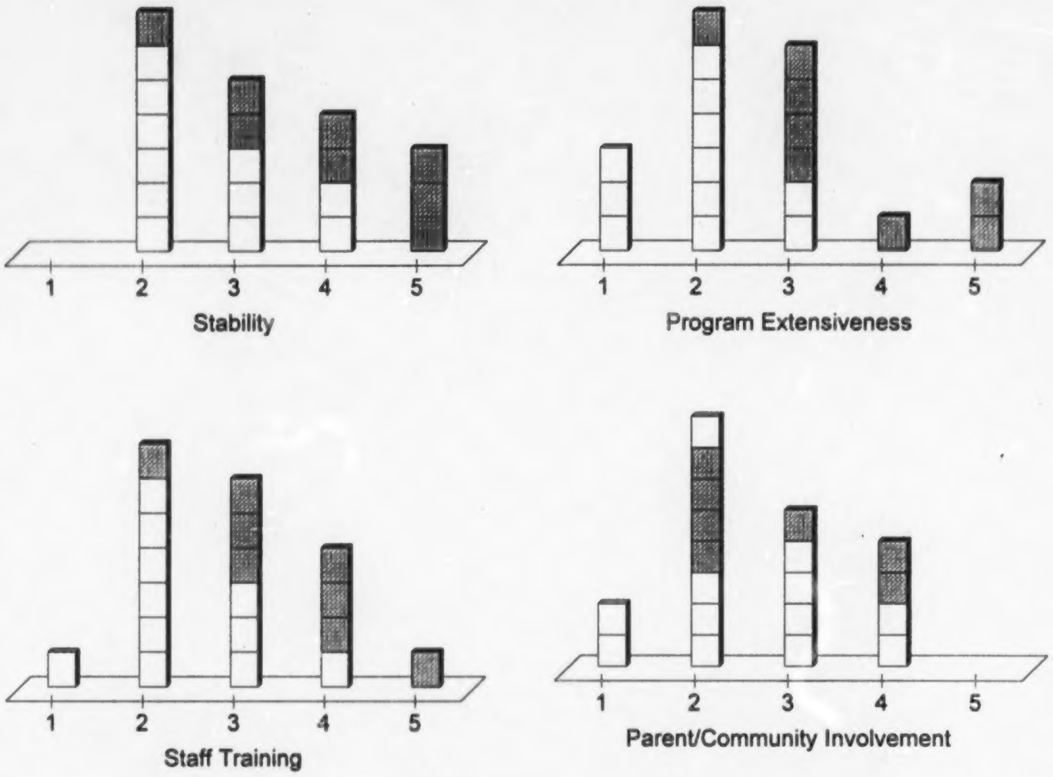
Note: Each box represents one district; shaded boxes represent districts selected as comprehensive.

Source: Program data 1992-95

with the corresponding Year 1 student drug use or attitude variable used as a covariate to adjust for the different levels of use across districts in Year 1. We also used several other covariates in the model to adjust for effects due to differences in district demographic characteristics: population density, district size, poverty level, and proportion of student population that were minority. In addition, the binary distinction for comprehensive vs. comparison programs was added to the model to test if this variable could explain additional variance in the outcome variables that was left unexplained by the dimensions of program strength. Variance accounted for by more than one variable was partialled out of each variable so that the weights correspond to the unique contribution of each variable to the overall model.

We conducted separate multiple regression analyses to predict each outcome variable from the set of demographic and program characteristic variables; these are shown in ***Exhibit 4-32***. An important result to note is that, in each case, most of the variance for the model was accounted for by the Year 1 use or attitude variable, indicating a high degree of correlation between the Year 1 and Year 4 measures. This strong association implies that

Exhibit 4-31. Distribution of District Prevention Programs' Scores on the Four Dimensions[a] of Program Strength



Interpretation: "Seven districts scored 2 points out of 5 on program stability; six of these were comparison districts and one was a comprehensive district."

[a] Scoring for each dimension was made on a 1-5 scale, where 1=non-existing or minimal and 5=extensive.

Note: Each box represents one district; shaded boxes represent districts selected as comprehensive.

Source: Program data 1992-95

tendencies for drug use and patterns of behavior that students exhibited in Year 4 were evident in students as early as the first year of the study. This finding suggests to us that, if drug use patterns and the behaviors and attitudes that sustain them are so well established by the end of elementary school, then prevention programs may need to focus even more attention on the earlier grades.

We also found that some of the variance in the Year 4 outcome measures could be attributed uniquely to certain demographic characteristics. In particular, rural districts were associated with more favorable results than suburban/urban districts; higher levels of district

Exhibit 4-32. Relationships Between Program Strength and Student Drug Use and Attitudes: Model R^2 and Unstandardized Weights for Multiple Regression Analyses Using Dimensions of Program Strength as Predictors

	Lifetime Drug Exposure[a]	30-day Drug Exposure[a]	General Attitudes[b]	Attitudes for Specific Drugs[b]	Perceived Peer Attitudes[b]	Resistance to Peer Pressure[b]	Perceived Consequences[b]	Self-Esteem[b]
	(R^2=.21)	(R^2=.07)	(R^2=.09)	(R^2=.07)	(R^2=.08)	(R^2=.02)	(R^2=.10)	(R^2=.10)
Independent Variables								
Covariates								
Year 1 outcome variable	.85	.58	.53	.51	.27	.14	.47	.33
Population density (1): suburban vs. urban districts	(ns)	(ns)	(ns)	(ns)	(ns)	(ns)	(ns)	(ns)
Population density (2): rural vs. suburban/urban districts	(ns)	(ns)	.79	(ns)	.74	(ns)	.63	(ns)
District enrollment	(ns)	(ns)	(ns)	(ns)	.00001	(ns)	(ns)	(ns)
Percent in poverty	.05	.03	(ns)	-.03	-.06	(ns)	(ns)	(ns)
Percent minority	-.03	-.02	.03	.02	.03	(ns)	(ns)	(ns)
Comprehensive vs. Comparison	1.22	.73	-1.97	-.90	-.83	(ns)	-1.79	(ns)
Program Strength								
Stability	(ns)	(ns)	.44	(ns)	(ns)	(ns)	.49	(ns)
Extensiveness	-.32	(ns)	.33	(ns)	.41	(ns)	.24	-.13
Staff training	(ns)	(ns)	(ns)	-.15	-.48	(ns)	(ns)	(ns)
Parent/community support	(ns)	(ns)	(ns)	(ns)	(ns)	-.21	(ns)	(ns)
(ns)								

Interpretation: The model R^2 for each regression analysis indicates the proportion of variance in the outcome variable that can be explained by the set of independent variables. The t-test associated with each independent variable tests that variable's unique contribution to the overall R^2.

[a] Higher values on this variable indicate more drug use.

[b] Higher values on this variable indicate more of the attributes desired by programs.

Note: ns=nonsignifcant at the .01 level. All others significant at p<.01 or lower.

Source: Student Survey 1992-95, N=7,221; district and program data 1992-95

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poverty were associated with less favorable results; and higher proportions of minority students in the district were associated with more favorable results.

For most of the prediction models (except ones predicting resistance to peer pressure and self-esteem), the distinction between comprehensive and comparison districts accounted for a significant amount of variance over and above the contributions made by all other variables in the model. The nature of this relationship indicated that after controlling for district demographic characteristics and the small differences in Year 1 outcomes, students in the comprehensive districts had ***less*** favorable results than students in comparison districts for drug use, attitudes towards drugs and perceptions of consequences for use of drugs in Year 4. This finding supports the results presented and discussed earlier for the differences between the two program types.

The main issue that we investigated through these analyses was the degree to which various dimensions of program strength were associated with favorable results for students. Although overall program strength (a summary of all four dimensions) was highly correlated with the comprehensive vs. comparison distinction, as we saw earlier, the question remained whether this alternative characterization of programs could yield additional information about the relationship between programs and students' outcomes beyond that revealed by the simple distinction between the two program types. As the data show, various dimensions of program strength were found to be significant predictors of students' drug use and behaviors, after controlling for demographic characteristics, Year 1 outcomes, and the comprehensive vs. comparison distinction. **Greater program stability**, as measured by the program's longevity, administrative stability, and presence of a philosophy or rationale to guide the program, was associated with more anti-drug attitudes and better recognition of the consequences of drug use. Further, the **more extensive programs**, those that included instruction for all grades, activities for high risk groups, and alternative programs such as peer programs and student support, were associated with lower lifetime drug use as well as more anti-drug attitudes, more anti-drug attitudes attributed to peers, and better recognition of the consequences of drug use. We note that, while these two characteristics tended to occur in many of the same districts (i.e., they are correlated), each provided an independently significant amount of prediction in these analyses.

For reasons that we are unable to explain, students in more "extensive" programs reported lower self-esteem, while those in programs with more staff training showed worse attitudes and perceived undesirable peer attitudes. In addition, parent and community involvement were associated with perceptions of more tolerant views towards drugs among students' peers. It is possible that these problems (lower self-esteem, poorer attitudes, more tolerant views toward drugs) existed in these districts prior to program implementation and helped to influence the creation of these program aspects from the beginning.

Student Outcomes Related to Student Program Participation

In earlier sections of this chapter we discussed the apparent lack of positive impact on students' drug use, attitudes, and beliefs, of a group of school district programs considered "comprehensive," when contrasted with districts that offered less comprehensive services. When we probed the relationship between aspects of prevention program strength and outcomes for students participating in those programs, we found evidence that certain aspects of the programs, namely program extensiveness and stability, were strongly associated with favorable student outcomes for drug use and attitudes. So far, we have examined the impacts of programs based on services ***offered*** to students in those districts. We now turn to an examination of the impact on student outcomes of students' self-reported participation in specific components and services of their districts' prevention programs.

During the last two years of the study, the annual survey asked students to report participation in activities offered by the prevention program in their district. These activities fell into four broad categories: (1) D.A.R.E., (2) other classroom instruction, (3) student support activities, and (4) peer-led programs. Questions were worded such that students would recognize the name of the program activity as offered in that district. In this section we examine the relationships between the level of student participation in these program components and results for: (1) recent and lifetime use of drugs for students in general; and (2) results for groups with differential drug use. The participation variables are somewhat problematic since not all components were available in all districts and, further, some components were available only to specific students while others were provided to all students. Nevertheless, we believe these analyses provide some insight into the potentially successful elements of prevention programs and may be useful in that regard.

Student program participation and recent and lifetime use of drugs. The first question we explored was whether student participation in different aspects of their districts' prevention programs throughout the four years of this study was associated with better results for students in Year 4. We analyzed the data using multiple regression analyses, with the students' participation as the predictor variable. Covariates were used in the model to adjust for the effects due to students' demographic characteristics (minority, gender, and parents' education). As we reported in earlier sections of this Chapter, school programs were not always reflective of the program at the district level, and student participation varied widely within schools; therefore, we considered students' participation in the programs to be at the school level, rather than at the district level. For this reason, only student characteristic and program participation variables were included in the models.

Analyses were performed separately for each outcome variable (lifetime drug exposure to all drugs, 30-day exposure to all drugs, general attitudes towards drugs, attitudes toward specific drugs, perceptions of peer attitudes toward the specific drugs, feelings of self-esteem, resistance to peer pressure, and perceptions of consequences of drug use). Most of the student characteristics were highly significant predictors of students' outcomes (see ***Exhibit 4-33***). Non-white students experienced lower drug use and greater resistance to peer pressure than White students. Although females also experienced less drug use than males and held more anti-drug views, they attributed more tolerance to their peers and had lower self-esteem than males. Finally, the educational level of the parents was highly associated with all outcome measures. In each case, the higher the parents' educational level, the better the students' outcomes for drug use, attitudes, self-esteem, resistance to peer pressure, and perceived consequences of use.

After holding these student characteristics constant for all students, there were beneficial effects associated with both classroom instruction and special events (see ***Exhibit 4-33***). Participation in each of these two activities was associated with comparatively less drug use and less tolerant attitudes towards drugs. Participation in special events was also significantly associated with better resistance to peer pressure, greater acknowledgment of the consequences of drug use, and higher self-esteem.

Participation in the D.A.R.E. program was associated with greater drug use, more tolerant views towards drugs for themselves, attributions of similar attitudes for their peers, and more tolerance towards consequences for using drugs. It is possible that the relationship is due to factors that might influence a school's decision to provide a D.A.R.E. program rather than to the program itself. Participation in peer-led programs was significantly associated with greater lifetime use of drugs. Finally, participation in student support services, as was indicated in other analyses, was associated with higher drug use as well as perceptions of tolerant views on the part of their peers. We note, however, that student support services as well as many peer-led programs are designed for students who may already be using drugs or are at higher risk for drug

Exhibit 4-33. Relationships Between Program Participation by Students and Student Drug Use and Attitudes: Model R^2 and Unstandardized Weights for Multiple Regression Analyses Using Program Participation as Predictor

	Lifetime Drug Exposure [a]	Recent Drug Exposure[a]	General Attitudes [b]	Attitudes for Specific Drugs[b]	Perceived Peer Attitudes[b]	Self-Esteem [b]	Resistance to Peer Pressure [b]	Perceived Consequences [b]
	(R^2=.06)	(R^2=.05)	(R^2=.05)	(R^2=.04)	(R^2=.04)	(R^2=.03)	(R^2=.01)	(R^2=.02)
Independent Variables								
Covariates								
Minority of student	-.51	-.42	(ns)	.41	.29	(ns)	.26	(ns)
Gender of student	-.91	-.64	1.31	.53	-.51	-.54	.14	(ns)
Parents' education	-.68	-.43	.65	.33	.44	.32	.06	.39
Program Participation								
D.A.R.E.	.32	.22	-.65	-.31	-.53	(ns)	(ns)	-.73
Other classroom instruction	-.51	-.31	(ns)	.31	.34	(ns)	(ns)	(ns)
Student support services	.73	.44	(ns)	(ns)	-.68	-.21	(ns)	(ns)
Peer-led programs	.32	(ns)	(ns)	(ns)	(ns)	(ns)	(ns)	(ns)
Special events	-1.26	-.76	1.68	.79	.92	.41	.23	1.23

Interpretation: The model R^2 for each regression analysis indicates the proportion of variance in the outcome variable that can be explained by the set of independent variables. The t-test associated with each independent variable tests that variable's unique contribution to the overall R^2.

[a] Higher values on this variable indicate more drug use.

[b] Higher values on this variable indicate more of the attributes desired by programs.

Note: ns=nonsignificant at the .01 level. All others significant at p<.01 or lower.

Source: Student Survey 1992-95, N=7,221; Supplement to the Student Survey 1993-95; N=7,221

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use than the general student population. It should not be surprising, therefore, that students who participate in these services report a higher level of drug use. In the context of this study, it is not possible to determine whether such services help to reduce drug use *for those students who participate* in them.

Program participation by groups with differential drug use. We next explored whether program participation had an effect on a specific group of students — those who had used drugs at some time prior to the Year 4 survey. Approximately 73 percent of students in this study had tried one or more drugs by Year 4 (eighth and ninth grades); however 53 percent of them said they were not currently using drugs at that time. In ***Exhibit 4-34*** we show the reported level of program participation among students who were abstaining from drug use in Year 4, and while the differences in the proportions of participating students are small for most components, they are significant for all components except peer-led programs. A higher proportion of students who received classroom instruction (55 percent) were abstaining from drug use, compared with those who did not receive this component (52 percent). Among those who participated in special events, the proportion of abstainers was 57 percent, compared with 46 percent for non-participants of special events. Finally, relatively more abstainers were among those who did *not* participate in D.A.R.E. and student support programs than among those who did. This last result is self-explanatory in the case of student support groups since students who participate are often those who need the assistance or support because of drug use. In the case of the D.A.R.E. program, this effect is not easily explained.

Exhibit 4-34. Percent of Students in Each Participation Group Who Were Currently Abstaining From Use (Year 4)

Program Component	Students Who Participated	Students Who Did Not Participate
D.A.R.E.[a]	52%	55%
Classroom Instruction[a]	55%	52%
Student Support[a]	49%	55%
Peer-Led Activities[a]	54%	53%
Special Events[a]	57%	46%

Interpretation: "Among students who had participated in D.A.R.E. and who had previously used drugs, 52 percent reported in year 4 that they were currently abstaining from drug use. Among those who did not participate in D.A.R.E., 55 percent reported in year 4 that they were currently abstaining from drug use."

[a] A Z-test for the difference in proportions between the two groups indicated a significant difference at $p<.01$ or lower.

Source: Student Survey 1995; Supplement to the Student Survey 1993-95; N=7,221

Summary of Findings for Outcomes of Prevention Programs

In summary, our findings for the impacts of drug prevention programs on student drug use and behaviors include:

- Few prevention programs appear to have been successful in attenuating the striking increases in student drug use and changes in attitudes and other behaviors observed during the four years of the study. In only one case does it appear that, despite serving a high-risk student population (high poverty, high dropout rates, city schools, high levels of crime), the district's prevention program had positive effects on drug use over the four years. In a few rural districts and, in several cases, in communities with strong ties to a religion that is actively opposed to alcohol, tobacco, and other drugs students reported less dramatic increases in drug use, attitudes, and behaviors over the four-year period of the study.
- The strongest predictors of a student's use of alcohol and other drugs in the later years of the study were: (1) level of use at the first time point (fifth and sixth grades) and (2) the length of time since the first measure (essentially, the student's age — the older, the more use). This suggests that, if drug use patterns and the behaviors and attitudes that sustain them are so well established by the end of elementary school, then prevention programs may need to focus even more attention on the earlier grades.
- Prevention programs selected as "comprehensive" ***did not*** experience better outcomes than the comparison programs; in fact, in many cases comparison programs seemed to be associated with better student outcomes with regard to:
    - lifetime use of all drugs and of individual drugs
    - current use of all drugs and of most individual drugs
    - increases in drug use over time
    - attitudes toward drugs.
- While the original design of the study focused on contrasting comprehensive and comparison districts, during the course of the study we discovered complications regarding this design. We found that: (1) programs would be better described as falling along the continuum of "comprehensiveness;" and (2) the prevention programs varied so much within districts that the classification of programs at the *district* level as comprehensive or comparison was not meaningful. Subsequent analyses focused on dimensions of "comprehensiveness."
- When programs were described along four dimensions of "program strength," and when several district characteristics were held constant for all districts, some of these dimensions were related to beneficial outcomes:

  - Prevention program "extensiveness," or having an array of well-implemented program services for both the general student population and for students at high risk, was associated with benefits for students: significantly lower lifetime use of drugs, more anti-drug attitudes, and better recognition of the consequences of drug use.

  - Prevention program "stability" was associated with more anti-drug attitudes and better recognition of the consequences of drug use.

- Certain district demographic characteristics were associated with student drug use and attitudes towards drugs:

  - rural districts were associated with ***more*** favorable results than suburban/urban districts
  - higher levels of district poverty were associated with ***less*** favorable outcomes
  - higher proportions of minority students in the district were associated with ***more*** favorable results

- Changes in attitudes toward and beliefs about drugs changed only slightly across the four years of the study and were related to only a few program characteristics, as noted above. Self-esteem and resistance to peer pressure did not change and were not related to program characteristics.

- With regard to individual student participation in prevention-related activities:

  - Students who reported having received prevention-related classroom instruction and participating in special school-wide events were less likely to use drugs and held more desirable attitudes and perceptions toward drugs than were students who had not participated in these activities.

  - While participation in peer-led programs did not appear to show any effects for student outcomes, participation in the D.A.R.E. program was associated with more reports of student drug use and more tolerant views toward drugs.

  - Students who reported receiving student support services were, as expected, those who were using drugs to a greater extent and who held more tolerant views toward drugs.

Chapter 5. Conclusions

In this chapter we present a summary of the findings for the study, discuss some possible reasons for the results obtained, and finally, discuss implications of these findings for prevention programs.

Summary of Study Findings

Findings from the longitudinal study of DFSCA drug prevention programs were presented in each chapter of this report and are repeated here in summary form. We present our findings for: student drug use; student beliefs and attitudes towards drugs; home, school, and community risk indicators; drug prevention efforts; and effects of prevention programs on student outcomes.

Student Drug Use. Our findings for student drug use revealed a rapid increase in drug use for the two cohorts of students as they advanced from the fifth and sixth grades through the eighth and ninth grades. This increase was sharpest for use of marijuana. In addition, drug use appeared to rise more rapidly for the younger cohort of students (those who began the study as fifth graders) than for the older cohort (those who began the study as sixth graders). Results for eighth grade were comparable to those of the Monitoring the Future Study[1] for the two years when a comparison was possible. Our specific findings for student drug use were as follows:

- Students used alcohol more frequently than any other drug and began using alcohol at an earlier age compared to other drugs. As eighth and ninth graders, 37 percent had used alcohol in the last 30 days and 21 percent had used it more than 10 times or had gotten drunk in that time period.
- Use of all drugs increased as students got older, especially alcohol, cigarettes, and marijuana. The number of students who had consumed alcohol rose from 37 percent to 67 percent in four years, while cigarette use more than doubled, from 18 percent to 46 percent. Marijuana use rose sharply from three percent to 26 percent.

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[1] Johnston, L. D., O'Malley, P.M., & Bachman. (1995 Press Release). *Monitoring the future survey (summary of findings through 1995)*. The University of Michigan.

Student Beliefs and Attitudes Toward Drugs. The distorted perceptions that students hold regarding the attitudes and drug use of their peers were evident in results compiled for this study; so too was the quick erosion of students' own anti-drug attitudes from the late elementary years to the middle and early high school years. Our specific findings were as follows:

- Students' views of drugs became considerably less negative over the four years, particularly for alcohol and cigarettes. While 82 percent felt that alcohol was bad to use, and 90 percent regarded cigarettes this way in year 1, by year 4 only 51 percent and 70 percent, respectively, felt the same about the two drugs.
- Students believed that their peers' views of drugs were more tolerant than their own and also held inflated beliefs about the amount of drugs their peers used. As eighth and ninth graders, only 17 percent of students believed their peers viewed alcohol as bad to use and only 19 percent believed the same regarding cigarette use.
- Levels of drug use, attitudes, perceptions, and beliefs about consequences of drug use are very sensitive to small variations in age; the younger students showed consistently less drug use and less tolerant views on drug use compared to the older students.
- When comparisons for cohorts were made at the same grade level, the results were remarkably similar, indicating a strong association between age and the observed behaviors. Drug use appeared to be more strongly related to age than to other variables.
- Current users of drugs showed lower academic aspirations, more involvement with violence in school, and were more likely to say they learned about drugs from friends and peers, compared to non-users of drugs. A larger proportion of the current users also reported that their parents allowed them occasional sips of alcohol compared to the other two groups.
- While attitudes and beliefs toward drugs changed as students' drug use rose over four years, students' perceived ability to refuse drugs and students' sense of self-esteem did not change very much.
- Most students (82 percent) would seek help with an alcohol or other drug problem from friends and peers but only half would go to their parents and less than half would seek help from school staff or counselors.
- Over 40 percent of students said they had drunk alcohol at a friend's house or at a party in the past year, 37 percent said they had drunk alcohol at home, and 27 percent said they had drunk alcohol at a relative's home.
- Over one-third of the students reported that during the previous 30 days they had ridden in a vehicle driven by a person who had been drinking alcohol or using other drugs.

Home, School, and Community. Data collected on the students' home, school, and community environments showed that some of the risk factors present in these environments were highly correlated with students' drug use and attitudes toward drugs; in particular, the rising violence and gang activity at school was associated with greater drug use among students and more tolerant views towards drugs. Other findings are summarized below.

Violence and Gang Activity

- One-fifth to one-half of 8th and 9th graders witnessed or experienced violence in school directed at teachers and students in 1995.
- Violence was less prevalent in rural districts than in either suburban or urban districts. One exception was gang activity which was reported with similar frequency in rural (50 percent), suburban (50 percent), and urban districts (53 percent).
- Students were more concerned with safety immediately outside the school than inside the school. One-fourth or more were concerned with safety in school parking lots and the surrounding neighborhoods.
- Higher levels of gang activity and violence in the school were significantly associated with greater drug use and more tolerant views towards drugs.

Students' School Experience

- Positive school experiences and more time spent on academic activities were associated with less drug use and higher self esteem.
- Students spent more of their out-of- school time socializing with friends and the least amount of time doing volunteer work.
- While some extracurricular activities such as car rides and parties were associated with less desirable outcomes for drug use and attitudes, other activities such as volunteer work and sports were associated with healthier student outcomes.

Home and Community

The following factors appeared to be associated with increased risk for greater drug use or for more tolerant attitudes and beliefs towards drugs:

- non-rural school districts
- lower educational levels of both parents

- instability of household employment
- households where one or both parents are absent
- parents' decision to allow teenage students to sample alcohol on occasion.

Drug Prevention Efforts. Our documentation of the drug prevention programming at the 19 school districts revealed great variation in approaches to prevention education, rationales for the selected program approaches, amount of programming delivered to students, degree of community involvement, and availability of resources. At the same time, we observed some common elements across districts, as follows:

- The typical prevention program offered classroom instruction, provided student support services (for example, student assistance programs, counseling, or peer mediation), and had special events throughout the school year (for example, Red Ribbon Week during which students pledge to remain drug-free).
- Classroom teachers were responsible for delivering most of the drug prevention instruction, while counselors or teachers provided student support services and police officers delivered the D.A.R.E. program.
- At all grade levels, teachers varied greatly in the amount of time they devoted to prevention instruction, resulting in uneven delivery of prevention information across schools or even classrooms.
- Parental involvement in the prevention program was lacking in most districts, while some community support and involvement was evident in most districts.
- Factors that were found to facilitate implementation of a district's prevention program included:
  - a high level of commitment of the program implementors (i.e., teachers, counselors) and the same level of commitment and support from the school administration;
  - sufficient and steady funding to afford long-term planning and implementation;
  - leadership and full-time availability of the prevention coordinator for the program; and
  - community involvement in the program.

- Students in comprehensive programs (that is, programs delivering prevention education to all students and offering a variety of prevention program activities) received more D.A.R.E., student support, and peer-led services than those in comparison programs; comparison programs provided more classroom instruction and one-time special events such as Red Ribbon Week.

- Over 90 percent of students reported receiving some form of drug prevention education between grades five and nine, such as classroom instruction, D.A.R.E., student support services, peer-led services, or special events at school.

Effects of Drug Prevention Programs. When we assessed the results for student drug use and related behaviors for individual districts, it was evident that few prevention programs were successful in slowing down the striking increases in student drug use and changes in attitudes and other behaviors during the four years of the study. In only one case does it appear that, despite serving a high-risk student population (high poverty, high dropout rates, city schools, high levels of crime), the district's prevention program had positive effects on drug use over the four years. In a few rural districts and, in several cases, in communities with strong ties to a religion specifically opposed to alcohol, tobacco, and other drugs, students reported less dramatic increases in drug use, attitudes, and behaviors. Further, results for the comprehensive programs were no better than those for the comparison programs, and in some cases, the comparison programs seemed — at least superficially — to have more positive effects with regards to drug use and attitudes.

Additional analyses examined program comprehensiveness using a continuous, rather than dichotomous (comprehensive vs. comparison) scale and yielded more encouraging results. This scale was defined along four dimensions, two of which were found to be related to beneficial outcomes for students and two of which were not. Prevention program "extensiveness", or having an array of well-implemented program services for both the general student population and for students at high risk, was associated with: significantly lower lifetime use of drugs, more anti-drug attitudes, and better recognition of the consequences of drug use. A second dimension, that of program "stability", assessed by the program's longevity, administrative stability, and presence of a philosophy or rationale to guide the program, was associated with more anti-drug attitudes and better recognition of the consequences of drug use. The two other dimensions, staff training and parent and community support, were not associated with better outcomes for students.

When students' actual participation in their district's drug prevention program was examined along with the outcomes for student attitudes and behaviors, several associations were found to be positive while others were negative. Specifically:

- Students who reported having received prevention-related classroom instruction and participating in special school-wide events were less likely to use drugs and held more desirable attitudes and perceptions toward drugs than students who had not participated in such activities.
- While participation in peer-led programs did not appear to show any effects for student outcomes, participation in the D.A.R.E. program was associated with more reports of student drug use and more tolerant views toward drugs.
- Students who received student support services were, as expected, those who were using drugs to a greater extent and who held more tolerant views toward drugs.

In summary, this study found:

- steep increases in drug use between the fifth and sixth grades and the eighth and ninth grades;
- changes in students' attitudes, perceptions of peer use, perceptions of peer attitudes, and perceptions of consequences of use that paralleled the changes in drug use and indicated more tolerance towards drugs and increasing misperceptions of their peers' use of drugs as students got older;
- reports of gang activity and violence in and around the schools;
- inability of most drug prevention programs to affect the rise in drug use and changes in attitudes and perceptions, except in one particular urban district, a few rural districts, and in several communities whose predominant religious background explicitly opposes alcohol, tobacco, and other drug use;
- some evidence that program stability and extensiveness are key ingredients for program effectiveness; and
- no evidence that the DARE program, which was used at 16 of the 19 school programs, led to any beneficial outcomes for students.

Conclusions

While the study does not reveal which specific forms of classroom instruction (in terms of curricula, content, or teaching methods), how much instruction, or which student support services were most effective, what we found is potentially very useful to school program decision makers. Synthesizing the above findings about program dimensions, student participation, and outcomes, we conclude that district programs need to be **stable** (in place for a long period of time, with continuity of staff, planning, and leadership) and **extensive** (have multiple components that target both the general student population as well as high-risk students and that include student support services), and — in light of the findings on student participation above — they especially need to provide prevention-related classroom instruction and school-wide special events. We also believe that the study's findings raise a number of important issues related to program improvement as well as to the practical conduct of research on program effectiveness. Below we discuss several of these issues.

Delivery of drug prevention curricula is not uniform within districts or schools, and it is difficult to measure the amount of drug prevention education that is actually delivered. In most districts, classroom prevention activities were implemented by teachers but because of time constraints, lack of resources, and the pressures to focus on teaching the basic subjects, program delivery was often inconsistent from one teacher to another, and program elements were not delivered in their entirety. Particularly in school districts with decentralized administration of their prevention program, teachers received differing messages about priorities and they used considerable discretion in how much and when to teach classroom components of the program. We found it extremely difficult to measure actual amounts of drug prevention delivered in a given year and to compare across districts. Students' responses to questions regarding their participation in drug prevention education in the classroom did not always yield the same picture of overall student participation for a given district as that described by program staff and observed by RTI staff. Current experts in the field of drug prevention say that inconsistent or incomplete delivery of the prevention curriculum is one of the main reasons why even those approaches that have proven effective under test conditions may not show positive results when implemented elsewhere.[2] The theory is that "incomplete treatment" weakens the potential effectiveness of the prevention program.

Based on this research and other current research, several factors appear to be important for increasing the likelihood that a program will be delivered faithfully, as intended by the authors of the curriculum. First, teachers must be given proper and sufficient training so they will be confident and prepared to deliver the program. Many of the approaches that aim to teach students how to resist and deal with social influences, for example, require teaching methods that are very different from the traditional methods that most teachers employ in their classrooms. These approaches utilize role-playing, small-group discussion, and other interactive methods and often use peer leaders to deliver portions of the program. Teachers may be more reluctant to use these types of approaches because they require more intensive training, more time in the classroom, and more planning. Second, the teacher's role in the delivery of the drug prevention program must be supported by the school administration, including providing sufficient time and resources to perform this task. Third, drug prevention education must be made a priority at the school.

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[2] Rohrbach, L.A., D'Onofrio, C.N., Backer, T.E., & Montgomery, S.B. (1996). Diffusion of school-based substance abuse prevention programs. *American Behavioral Scientist*, 39 (7), 919-934.

Drug prevention approaches that have been shown to be effective are not widely used, while approaches that have not shown evidence of effectiveness or have not been evaluated properly are the most common approaches currently in use. The consensus of the current research literature in the area of drug prevention is that certain approaches, such as those that teach children how to resist and deal with the powerful social influences for using drugs and that alter the misperceptions of peer drug use, have the best chance of making a difference for students.[3] Unfortunately, these types of approaches are not among those currently in use at most school districts across the country. Experts say that there are various reasons for this, including poor marketing of the research-based curricula, heavy marketing of other approaches, not enough resources to place new curricula in schools, the need for teacher training in non-traditional teaching methods such as role-playing, and the overwhelming demands on teachers' time.[4]

Among the 19 school districts participating in the study, all but three of the districts had Project D.A.R.E. in place, a program that has shown mixed results for its effectiveness but that has been implemented in 75 percent of schools in this country and enjoys wide popularity among school staff and parents. Among the attractive features of the program are the fact that it is delivered by police officers who come to the school and the police departments typically pay for all or part of the program costs. Other curricula that are widely used in the school districts we visited represent approaches that have not been found to be effective at reducing or preventing drug use or have not been adequately tested, according to experts in the field of drug prevention evaluation.[5] These approaches primarily teach self-esteem, decision-making skills, stress management, and goal-setting. According to this literature, then, one possible explanation for why programs in general, including those in the school districts that participated in this study, do not appear to be effective is that the approaches they use are not ones that have been shown to effect changes in student drug use and related behaviors. In only one case among the study districts does it appear that, despite serving a high-risk student population, the district's drug prevention program had positive effects on drug use over the four years of the study. One of the several salient features of this particular prevention program was the district-wide use of an elementary grade-level curriculum that has been shown to have positive effect on students' attitudes towards health and on tobacco use.

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[3] Donaldson, S.I., Sussman, S., MacKinnon, D.P., Severson, H.H., Glynn, T., Murray, D.M., & Stone, E.J. (1996). Drug abuse prevention programming. Do we know what content works? *American Behavioral Scientist,* 39 (7), 868-883.

Hansen, W.B. (1992). School-based substance abuse prevention: a review of the state of the art in curriculum, 1980-1990. *Health Education Research,* 7 (3), 403-430.

[4] Rohrbach, L.A., D'Onofrio, C.N., Backer, T.E., & Montgomery, S.B. (1996). Diffusion of school-based substance abuse prevention programs. *American Behavioral Scientist,* 39 (7), 919-934.

Few districts seem to know about or consider research findings when planning their prevention programs. In fact, we observed only a few districts in which program staff or administrators engaged in a well-defined process of developing their programs. Such a process would include (1) assessing the problems of students in the district's schools and in the community; (2) setting priorities for how to address these problems; (3) reviewing relevant research that links these problems and priorities to effective strategies; (4) selecting strategies that appear to have promise for their district; (5) providing the leadership and training necessary to implement the selected strategies; (6) assessing progress in meeting the needs identified in step 1; and (7) adjusting program strategies accordingly. Unfortunately, as we have noted above, there are many barriers to such a thorough planning and implementation process, not the least of which is a shortage of resources.

Few districts also conducted formal program evaluations to assess their program's effectiveness and identify areas in need of improvement. While all the school districts we studied conducted periodic informal assessments of program activities or components, only half the districts had conducted more formal program evaluations that involved the collection of both process and outcome data. Further, only a few of those districts used the results of the evaluations to improve their programs. In several districts that did conduct evaluations of their programs, limited resources precluded staff from implementing the kind of program suggested by the evaluation. Several factors appeared to contribute to the lack of program evaluation efforts. In the case of districts with limited prevention funds, service provision necessarily took priority over evaluation activities. Another barrier to conducting evaluations is that district and school drug prevention staff in most districts do not have the requisite skills to design evaluations, analyze the data, interpret the results, and re-evaluate the program. Most of the districts were in need of technical assistance in designing and conducting evaluation efforts. A national study of local evaluation practices obtained similar findings.[6] The study found that, while over 90 percent of local education agencies conduct descriptive assessments of the quality of their programs, only 10 percent conduct more rigorous evaluations that involve an experimental design. Nearly half of the district prevention coordinators interviewed cited a lack of expertise in evaluation as a major impediment to conducting more successful evaluations of their programs.

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[5] Botvin, G.J., (1995). Drug abuse prevention in school settings. In Botvin, G.J., Schinke, S., & Orlandi, M.A. (Eds.), *Drug Abuse Prevention with Multiethnic Youth* (pp. 169-192). Thousand Oaks: SAGE Publications.

Funding is inadequate in most school districts for implementing the types of programs that schools need. DFSCA funds for implementing the drug prevention programs averaged $6 to $10 per pupil for the participating districts. This amount is similar to the average DFSCA funding in school districts nationally during this time period. Although some of the school districts were able to locate additional sources of funding for prevention, total funding was typically no greater than $10 per student, including all sources. In 11 of the 19 districts DFSCA was the only source of funding and district administrators stressed that without this funding they would not be able to carry out the program they had in place.

Most school districts we visited were quick to point out the inadequacy of the funds they received. Limited funding almost always means that schools and districts must make some difficult choices about what and how much to implement in a drug prevention effort. The school districts with the least amount of funds found they could only teach drug prevention education at certain target grades but not at other grades, or rely heavily on the D.A.R.E. program to provide basic prevention education in a few grades. Often, these programs must choose between serving the entire school population very broadly with school-wide activities like Red Ribbon Week, or concentrating on serving only the most at-risk children with one or two activities such as support groups or counseling. School districts in this study saw a reduction in their prevention budgets during the last several years of the study, making it yet more difficult to maintain the drug prevention efforts in place. The two aspects of drug prevention programs that we found to be linked to positive outcomes for students — program stability and extensiveness — are ultimately related to the level and continuity of funding.

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[6] Tashjian, M.D. & Elliot, B. (1997). *Local Evaluations of Programs Funded Under the Drug-Free Schools and Communities Act.* Report to the U.S. Department of Education.

Program stability and extensiveness are difficult to achieve, given the resources available to districts and schools. In this study, we found that both program stability and extensiveness were associated with better outcomes for students. One of the aspects of program stability that appears to be key is the degree of availability of the prevention program coordinator (PPC) for directing the program. In the districts where PPCs were available full time, the program was able to gather additional resources, solicit greater community involvement, and give more time to planning and coordination. We also found that these districts offered more district-wide teacher training in drug prevention education. The majority of districts with full-time PPCs were among those with comprehensive prevention programs. By contrast, districts with PPCs that were available only one-quarter of their time or less for directing the program tended to have programs shaped more by availability of resources and other pragmatic reasons than by careful planning and assessment. The majority of these districts had minimal program implementation.

With respect to program extensiveness, we found that, despite comprehensive programming at the district level, the actual amount of program delivered to students was inconsistent with overall district expectations, varied greatly from school to school, or was not easily measured. This was especially true in districts with decentralized school management where schools make individual choices for the types and amounts of drug prevention programming they deliver to students. We believe that to be well implemented and have a chance to make an impact on students, prevention programs must have available a prevention coordinator committed at least half time, if not full time. This appears to be true regardless of district size — though it is clearly more difficult for smaller districts to support a full-time coordinator. Further, the district-level program officials might play a stronger role in recommending that schools implement specific curricula and activities and in requiring schools to implement key program elements and greater amounts of prevention programming. Unfortunately, most of the districts in the study did not have sufficient funding to support a full-time PPC whose sole responsibility was planning and directing the prevention program.

Negative social influences from outside the schools are difficult to counteract, and they compete with any positive effects the school programs may have. Recent data from several national studies show that drug use among teenagers began increasing in 1991, after a period of declining drug use for this age group.[7] Coupled with this increase in drug use is a general belief on the part of young people that drugs are not harmful. Our study found evidence, among longitudinally-followed cohorts of students, of steep increases in drug use (especially marijuana), the high correlations of drug use with pro-drug attitudes, and the misperceptions of their peers' tolerance and use of drugs. In searching for an explanation as to why drug use has increased recently, experts in the field point to various social influences that may have played a role, including: more relaxed parental attitudes; media images that glamorize drug use, especially cigarettes and alcohol; and less media attention to the negative effects of drug use. In addition to dealing with drug use, schools and communities have also had to concentrate on other social problems, some of which are correlated with drug use, such as youth violence.

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[7] Johnston, L.D., O'Malley, P.M. & Bachman, J. (1995 Press Release). *Monitoring the future survey (Summary of findings through 1995).* The University of Michigan.

Data from this study also showed that students' level of drug use and attitudes towards drug use in fifth and sixth grades were highly predictive of their drug use and attitudes four years later. This suggests that, if drug use patterns and the behaviors and attitudes that sustain them are so well established by the end of elementary school, then prevention programs may need to focus even more attention on the earlier grades.

Additional Implications of the Findings

We believe that the findings of this longitudinal study of school-based prevention programs, and the issues raised by those findings, have some additional implications for program planners to consider, and these are presented below. The study's findings regarding student behaviors can be used to build better programs and to strive for a better fit between student behaviors and drug prevention education programs.

(1) The sensitivity of drug use behaviors, attitudes, perceptions, and general views on drug use to small (one-year) changes in age, would seem to suggest that drug use prevention programs need to be tailored to the age of the student to be effective. A program that serves a wide range of grades with the same program components may have maximal effects for one or two grades but will be much less effective at lower or higher grades.

(2) Attitudes toward drugs and perceptions of drug use by others change rapidly with increasing age. This suggests that programs must deal aggressively and proactively with students' changing views. Also, such target measures as refusal skills and feelings of self-esteem do not change very much after fifth grade and do not appear to be very amenable to change after that age. These may not be useful targets for prevention programs or they may need to be targeted at a younger age.

(3) The powerful effects of peer drug use and attitudes were suggested by students' regard for peers as sources of information and support, and in

students' beliefs about their peers' drug use and attitudes. Current experts in the field of drug prevention believe that strategies that aim to challenge such influences and misperceptions have the best chance of improving student outcomes for drug use and attitudes. Many of the prevention programs we studied were beginning to employ more peer leaders in program delivery, a strategy that experts say adds credibility to the message and boosts effectiveness by helping to alter perceived norms regarding drug use and social acceptability. Programs also sought ways to involve families and the community at large, strategies believed to improve the likelihood of successful outcomes and promote longer-lasting results. We believe that prevention programs should be encouraged in their efforts to expand these initiatives that research has found to be of value.

(4) Given the small impact of programs reported in this study, influences beyond the control of the schools need to be addressed in rethinking drug prevention efforts as well as further research on improving the school-based prevention programs. Wide variations in student drug use in the different communities studied suggest that research should explore alternative models that can influence social norms affecting student behavior. While the school has an important role, interventions that go beyond school-based programs may be needed in many communities. This may require the integration of school-based approaches in broader community partnerships to curtail drugs. We currently lack research on how to do this effectively and what the outcomes might be.

(5) The Safe and Drug-Free Schools and Communities Act[8] (SDFSCA) program at the national level should consider supporting and encouraging more use of approaches that the research has found to be effective and less use of approaches that do not have strong evidence of effectiveness. To move towards such approaches, school programs must: (1) be made aware of new findings as these become available; (2) have the resources to implement such programs, including training for teachers in non-traditional teaching methods; and (3) receive ongoing technical assistance for these initiatives. The SDFSCA program might make specific recommendations for strategies and approaches that have the best chance of making a difference in schools and provide the financial support to make such approaches possible to implement. Without such direction, schools may not necessarily select prevention components that hold the most promise, but may opt instead for programs they can afford or programs that can most easily be implemented, given the myriad other demands on schools to respond to other social problems.

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[8] As noted earlier, in the 1994 reauthorization of the program, school safety was added as a program focus.

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Appendix
Glossary of Analysis Variables

Glossary of Analysis Variables

Note: Brackets following the variable name are used to indicate either the number of levels of a categorical variable (e.g., two [2] categories) or that the variable is continuous [c] rather than categorical.

30-day use [4]

Student reported: (1) never using the drug in the last month; or (2) using it 1-2 times; (3) 3-9 times; or (4) 10 or more times. For some analyses, used a dichotomous variable to indicate use/no use in the past month.

Attitudes toward specific drugs [c]

Sum of students' reactions to 8 statements about specific drugs. Example: *I think that for me, using alcohol to get drunk is.....* Response options (coded 1-3) were: a bad thing; neither good nor bad; and a good thing. Variable ranges from 8 to 24, where higher values indicate more anti-drug attitudes.

Cohort [2]

Younger/older cohort. The younger cohort entered the study in Year 1 at grade 5 and exited in Year 4 at grade 8; the older cohort entered at grade 6 and exited at grade 9.

Dimensions of program strength [c]

Scoring for each of the four dimensions (stability, extensiveness, training, and parent/community support) was made on a 1 to 5 scale, where 1=non-existent or minimal and 5=extensive. Overall program strength (or total score) is the sum of these four scores and has a possible range from 4 to 20.

District enrollment [c]

District figure for student enrollment.

Extensiveness (see Dimensions of program strength)

Extracurricular activities (movies, concerts, car rides, volunteer work, sports or exercise, hang out with friends, shop, read magazines, read newspapers, attend parties) [c]

Each variable ranged from 1 (never do) to 5 (do almost every day).

Gender of student [2]

Student is male or female.

General attitudes towards drugs [c]

Sum of students' reactions to 12 general statements about drug use. Example: *I would like the chance to get high on drugs*. Response options (coded 1-3) were: agree; neither agree nor disagree; and disagree. Scales on responses to negatively-worded statements were reversed prior to creating the composite variable. Variable ranges from 12 to 36, where higher values indicate more anti-drug attitudes.

Heavy use [2]

Student reported using/not using drug at least 10 times in the past month or (for alcohol) reported being drunk at least once in the past month.

Level of violence against students and staff [2]

Student did/did not respond "yes" to either of these questions:

> *In the last six months, did a student attack or threaten to attack a teacher in your school?*
>
> *During the past six months, did anyone physically attack or pick a fight with you at school?*

Lifetime use [4]

Student reported: (1) no use (ever) of the drug; or (2) used it 1-2 times; (3) used it 3-9 times; or (4) used it 10 or more times. For some analyses, used a dichotomous variable to indicate ever used/never used.

Lifetime drug exposure [c]

Sum of lifetime use responses (student ever used) for: alcohol (any amount), alcohol (enough to get drunk), cigarettes, marijuana, tobacco, and inhalants. For each drug, responses were coded: 1=never used; 2=1-2 times; 3=3-9 times; and 4=10 or more times. Variable ranges from 6 to 24, where 6=never used any of the drugs and 24=used all the drugs at least 10 times in their lifetime.

Minority of student [2]

Student is white or non-white.

Parent/community support (see Dimensions of program strength)

Parents allow sips of alcohol [2]

Student's parents allow/do not allow them sips of alcohol on occasion.

Parents' education [c]

Variable is the average of both parents' responses for level of education. Parents' scores range from 1 (completed grade school or less) to 6 (completed graduate school or professional school after college).

Parents' employment status over time [2]

One or both parents did/did not have a job during each of the four years of the study.

Perceived peer attitudes [c]

Sum of students' reactions to 8 statements about perceived peer attitudes toward specific drugs. Example: *I believe most students in my grade think that using alcohol to get drunk is.....* Response options (coded 1-3) were: a bad thing; neither good nor bad; and a good thing. Variable ranges from 8 to 24, where higher values indicate more perceived anti-drug attitudes.

Perceived consequences of drug use [c]

Sum of students' reactions to 12 statements about the consequences of using alcohol, cigarettes, and marijuana. Example: *Drinking alcohol (beer, wine, or liquor) makes kids do poorly in school.* Response options (coded 1-3) were: agree; neither agree nor disagree; and disagree. Variable ranges from 12 to 36, where higher values indicate greater acknowledgment of the consequences of drug use.

Percent minority [c]

District figure for the percent of students in the district who were non-white.

Percent in poverty [c]

District figure for the percent of students living in poverty.

Population density [3]

District is urban, suburban, or rural. Dummy-coded variables were created for regression analyses.

Presence of gangs [2]

Yes/no response to question: Are there any street gangs at your school?

Program participation [2]

Student has/has not ever participated in prevention program activities specific to their district from each of these categories: D.A.R.E., classroom instruction, student support, peer-led activities, or special events.

Resistance to peer pressure [c]

Sum of students' reactions to 3 hypothetical situations involving peer pressure to use marijuana, alcohol, and cigarettes. Response options (coded 1-3) were: very hard (to say "no"); hard; and not hard at all. Variable ranges from 3 to 9, where higher values indicate greater resistance to peer pressure.

Safety concerns [c]

Sum of responses to questions of safety concerns for: school bathrooms, school cafeteria, gym or gym locker room, parking lot or other school grounds, and neighborhood around the school. Response options (coded 1-3) for each location were: never; sometimes; and always. Variable ranges from 5 to 15, where 5=never avoids any of the places because of safety concerns to 15=always avoids all areas.

School experience [c]

Sum of students' responses to 7 statements about school experiences. Example: *How often do you enjoy being in school?* Response options (coded 1-4)were: never or almost never; sometimes; often; and almost always. Variable ranges from 7 to 28, where higher values indicate a more positive school experience.

Self esteem [c]

Sum of students' reactions to 6 general statements about themselves. Example: *I feel good about myself.* Response options (coded 1-3) were: agree; neither agree nor disagree; and disagree. Variable ranges from 6 to 18, where higher values indicate a more positive view of themselves.

Stability (see Dimensions of program strength)

Thirty (30)-day drug exposure [c]

Sum of 30-day use responses (student used drug during the past month) for: alcohol (any amount), alcohol (enough to get drunk), cigarettes, marijuana, tobacco, and inhalants. Response options (coded 1-4) for each drug were: never used; 1-2 times; 3-9 times; and 10 or more times. Variable ranges from 6 to 24, where 6=never used any of the drugs and 24=used all the drugs at least 10 times in their lifetime.

Time spent with television, video, or video games [c]

Variable ranges from 1 (0 hours per day) to 6 (6 or more hours per day).

Time spent on homework [c]

Variable ranges from 1 (0 hours per day) to 6 (6 or more hours per day).

Training (see Dimensions of program strength)

Two-parent household [2]

Student lives/does not live with two parents.